DOCTORAL THESIS

An examination of hardiness and stress-related growth following sport injury

Salim, Jade

Award date:
2016

Awarding institution:
University of Roehampton

AN EXAMINATION OF HARDINESS AND STRESS-RELATED GROWTH FOLLOWING SPORT INJURY

Jade Salim

A thesis submitted in partial fulfillment of the requirements for the degree of PhD

Department of Life Sciences,

University of Roehampton

2016

This thesis is dedicated to my mum. My hero.

Contents

Publications

Study 1:

Salim, J., Wadey, R., & Diss, C. (2015a). Examining the Relationship between Hardiness and Perceived Stress-Related Growth in a Sport Injury Context. *Psychology of Sport and Exercise, 19*, 10–17.

Study 2:

Salim, J., Wadey, R., & Diss, C. (2015b). Hardiness, Coping and Stress-Related Growth following a Sport Injury. *Journal of Applied Sport Psychology, 00: 1-16*

Appendices

Tables

Figures

Acknowledgments

I want to thank Dr. Ceri Diss and Dr. Ross Wadey for their continued support throughout the completion of this thesis. In particular, Ceri, thank-you for your wise words and guidance throughout this Ph.D. experience. Ross, firstly, I am eternally grateful for providing me with this amazing opportunity. Secondly, thank-you for your continued guidance, unbelievable patience, and for always having faith in my ability to complete this Ph.D., especially at times when I lacked faith in myself.

I want to say thank-you to my family and close friends: Dad, thank-you for always keeping me grounded; Gavin, thank-you for always making me smile; and Jason, thank-you for always believing in me. Thank-you to Isobel, Chris, Harriet, George, Chon and Lau for being my rocks throughout this process and for always giving me encouragement and lifting me up during the toughest times.

I also want to thank my fellow Ph.D. Candidates, in particular Fran, Blossom and Faye for providing a learning environment that I thoroughly enjoyed being part of. Finally, thank- you to all the participants who helped to make this thesis possible.

Summary

This thesis examined hardiness, coping and stress-related growth (SRG) following sport injury. Study 1 examined the relationship between hardiness and SRG. The data were analyzed using Pearson product-moment correlations and Preacher's and Hayes's (2008) bootstrapping procedure. Findings revealed a significant positive relationship between hardiness and perceived SRG, and two strategies were found to mediate this relationship: emotional support and positive reframing. That is, the reason why athletes higher in hardiness had higher SRG scores was because they reported greater use of their social support for emotional reasons (e.g., moral support, sympathy or understanding) and were able to construe their injury in positive terms. Despite these significant findings and their important contribution to research, the data is limited due to its quantitative nature. Therefore, Study 2 aimed to enhance the interpretability and meaningfulness of the findings from Study 1. Specifically, Study 2 aimed to explain *how* injured athletes high in hardiness promoted stress-related growth (SRG) and *why* athletes low in hardiness were less likely to derive such benefits. Semi-structured interviews were conducted and transcribed, which were then analyzed and displayed using composite sequence analysis. Findings revealed that athletes high in hardiness experienced SRG through four mechanisms: (a) emotional outlet, (b) positive reframing, (c) positive affect, and (d) investing in resources. In contrast, athletes low in hardiness had no emotional outlet, which led to a number of sub-optimal outcomes. This study observed the importance of emotional disclosure during one's recovery from injury. Informed by the findings from Study 1 and 2, Study 3a and 3b aimed to evaluate an emotional disclosure intervention with injured athletes low in hardiness. The intervention was for four weeks, and included a four week follow-up and a three month social validation interview. The intervention consistent of three groups: a written-disclosure group (WD Group), verbal-disclosure group (VD Group), and the Control Group (C Group). The quantitative data were analyzed using repeated measures AVOVA and MAVOVA, and the qualitative data were analyzed using thematic analysis. Findings revealed the VD Group experienced significantly more SRG than the control group. This finding was explained from the VD Group fully disclosing their thoughts and feelings, and having sufficient time to restructure their stories. Both the WD and VD Groups recalled writing and talking to be a cathartic process; however, they did not report as many desirable outcomes as the VD Group. In conclusion, this thesis has achieved its purpose, and has made a significant contribution to research in a number of ways. From a theoretical perspective, it supported and extended a number of theories and models including the Wiese-Bjornstal et al.'s (1998) integrated model of responses to sport injury, the Organismic Valuing Theory (Joseph & Linley, 2005), and broaden-and-build-theory of positive emotions (Fredrickson, 2013). This thesis also had an empirical impact, as it integrated two lines of which have examined hardiness or SRG following injury, extended research by directly examining the relationship between hardiness and SRG and the coping strategies that mediate this relationship. This thesis not only supported previous hardiness research but also supported and extended research within the growth and sport injury literature, as well as disclosure research within in a sporting and non-sporting context. Finally, from an applied perspective, it emphasizes that practitioners who work with injured athletes may not only have an important role in preventing and/or repairing the negative consequences of injury, but also in terms of enabling them to experience SRG.

Chapter 1: Literature Review

Abstract

The purpose of this chapter is to provide a critical review of the research that has examined the psychology of sport injury, personality trait of hardiness, and perceived stress-related growth (SRG). Specifically, this narrative review starts by describing Wiese-Bjornstal, Smith, Shaffer, and Morrey's (1998) integrated model of response to sport injury, and synthesizing the research that has aimed to support or refute this model. It then draws together the research findings focusing on the effect of hardiness and SRG on different outcome measures across various contexts, with a particular focus on the research that has been conducted in the context of sport injury. Conceptual and methodological issues that exist within these bodies of literature are also explored. The chapter finishes with a summary and the aims of this program of research.

Introduction

A number of narrative reviews have been published that focus on the psychology of sport injury. For example, Evans and Hardy's (1995) discussion of the grief response following sport injury; Evans, Mitchell, and Jones's (2006) description of athletes' psychological responses to injury; Levy, Polman, Clough, and McNaughton's (2006) commentary on adherence to sport rehabilitation programs; Brewer's (2010) consideration of the relationship between psychological factors and rehabilitation outcomes; and Wadey and Evans's (2011) overview of implications for professional practice. The purpose of this literature review, however, is to justify the aims of this program of research. In order to provide this justification, this chapter has been divided into four sections. The first section, *Responses to Sport Injury*, will contextualize the review by synthesizing the literature exploring the psychology of sport injury, paying particular attention to two concepts pertinent to this thesis: emotional responses and coping strategies. The second section, *Personality Trait of Hardiness,* will review the literature on hardiness including that within the sport psychology generally and sport injury specifically. The third section, *Stress-Related Growth (SRG),* will examine the literature on SRG and the recent research within sport. The final section provides a summary and recommendations for future research.

Responses to Sport Injury

Sport injuries have been found to have different cognitive, emotional and behavioral implications for athletes (Evans, Mitchell, & Jones, 2006). A number of models have been proposed within the literature regarding the response to and rehabilitation from sport injury (e.g., Brewer, 2007; Kubler-Ross, 1969; Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998). The most comprehensive model is Weise-Bjornstal et al.'s (1998) integrated model of response to sport injury (see Figure 1). This model suggests that pre-injury and post-injury factors influence the individuals' behavior, emotions and cognitions. Pre-injury factors

include personality (e.g., hardiness), history of stressors (e.g., previous injuries), and coping resources (e.g., social support). Post-injury factors include personal (e.g., confidence) and situational variables (e.g., rehabilitation environment). This model suggests that when an individual gets injured, their cognitive appraisals, emotions, and behaviors work in an interactive and dynamic fashion. Cognitive appraisals are evaluative processes where one will assess their ability to cope with the stress (Lazarus & Folkman, 1984). These appraisals determine the stressfulness of the event, their emotional and behavioral responses, and how they cope with the situation (Lazarus, 1991). The bi-directional arrows at the center of the model represent the dynamic nature of rehabilitation. The arrows in the clockwise direction show the predominant path of rehabilitation process (i.e., cognitive appraisals affect emotions and in turn behavior). The counter clockwise arrows suggest that the direction can change between any of the responses during rehabilitation. The arrows within the dynamic core represent both a spiral towards full recovery (heading upward in clockwise direction) and also away from full recovery (heading downward in counter clockwise direction). The core of the model shows the recovery outcomes of the cognitive, emotional and behavioral responses (Walker et al., 2007). Depending on how the individual responds to their sport injury influences how they will recover both psychologically and physically from sporting injury, either back to pre-injury level or above (i.e., growth) or not fully recovering (Wiese-Bjornstal et al., 1998).

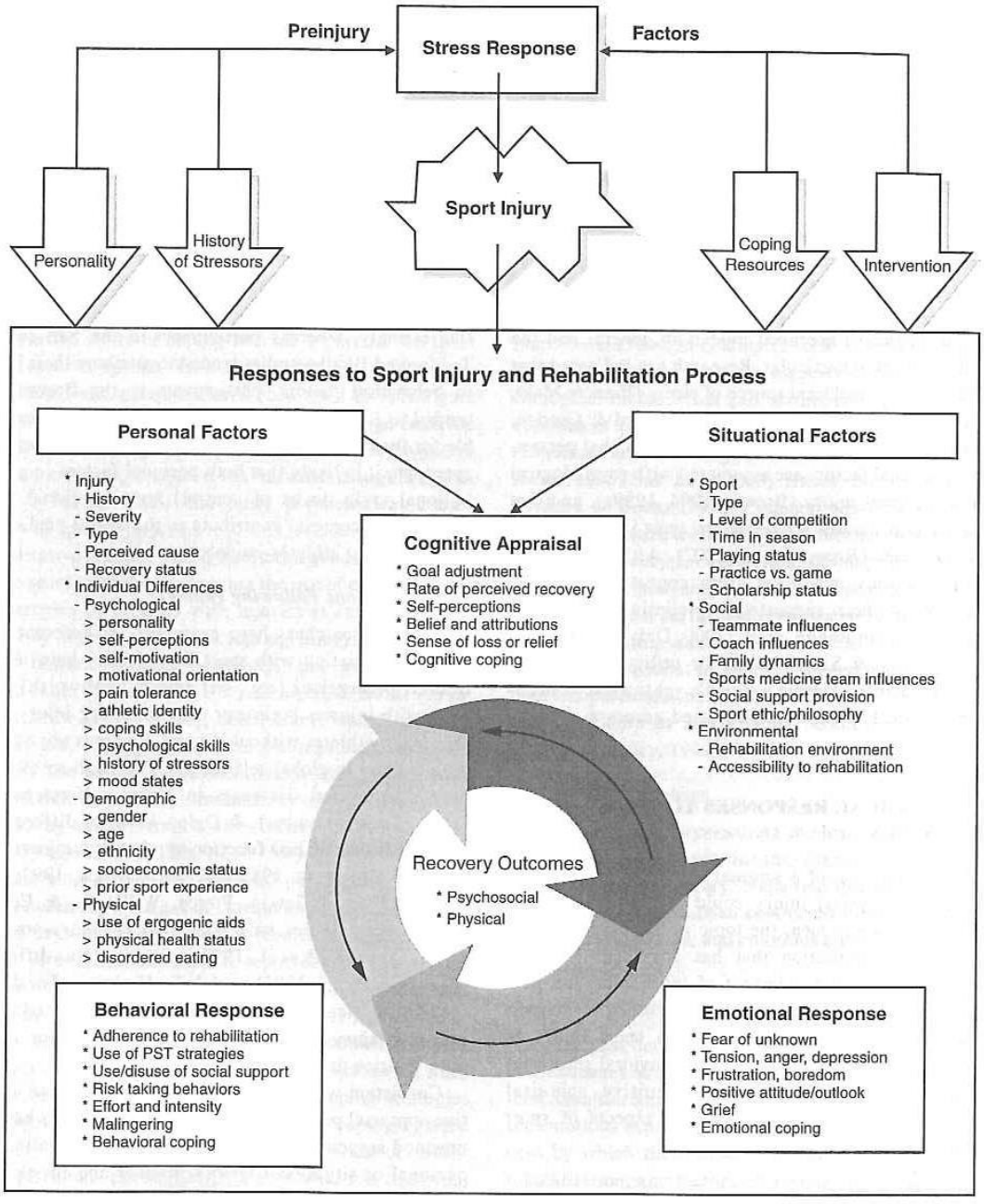

Figure 1. Weise-Bjornstal, D. M., Smith, A, M., Shaffer, S. M., & Morrey, M. A. (1998). An integrated model of response to sport injury: Psychological and sociological dynamics. *Journal of Applied Sport Psychology, 10*, 46-68

Researchers have focused on a number of variables proposed within the model, including: cognitive appraisals (e.g., Albinson & Petrie, 2003; Chung, 2012; Daly, Brewer, Van-Raalle, Petitpas, & Sklar, 1995; Ruddock-Hudson, O'Halloran, & Murphy, 2014; Weiss & Ebbeck, 1996), social support (e.g., Abgarov, Jeffery-Tosoni, Baker, & Fraser-Thomas, 2012; Mitchell, 2011; Rees, Mitchell, Evans, & Hardy, 2010; Rees, Smith, & Sparkes, 2003), psychological skills (e.g., Hare, Evans, & Carlow, 2008; Nordin-Bates et al., 2011; Wesh et al., 2011), adherence (e.g., Marshall, Donovan-Hall, & Ryall, 2012; Levy, Polman, Nicholls, & Marchant, 2009), interventions (e.g., Evans & Hardy, 2002a; Evans & Hardy, 2002b; Rock & Jones, 2010), rehabilitation outcomes (e.g., Brewer, 2010; Hicks-Little, & Hammer, 2014; Wadey, Podlog, Hall, Hamson-Utley), and a variety of personal (e.g., athletic identity; Brewer, Cornelius, & Van Raalte, 2010) and situational factors (e.g., timing of injury; Gayman & Crossman, 2003). Two of the most researched concepts that hold the most relevance to this program of research however, are injured athletes' emotional response and use of coping strategies.

Emotional response. Researchers that have explored emotional responses following injury have found athletes to experience a range of negative emotions (e.g., depression, anger and confusion; Clement, Arvinen-Barrow, & Fetty, 2015; Leddy, Lambert, & Ogles, 1994; Pearson & Jones, 1992; Smith, Scott, O'Fallon, & Young, 1990). And these emotional responses have been found to be temporally defined (e.g., Bianco, Malo, & Orlick, 1999; Ganito, 2001; Johnston & Carroll, 1998). Specifically, researchers have found that the emotions experienced by the athletes change over their injury process from negative to positive (e.g., Madrigal & Gill, 2014; McDonald & Hardy, 1990; Quackenbush & Crossman, 1994; Quinn & Fallon, 1999; Wadey et al., 2012). Typically, researchers have found that at injury onset athletes' experience emotions such as fear, anger, or depression (Faris, 1985). This can lead them to oversimplify the injury as good or bad, right or wrong, or draw

unwarranted conclusions (Rotella & Heyman, 1986). Throughout rehabilitation, emotions include discouragement, frustration, and isolation. And upon their return to sport, athletes have been found to experience impatience, re-injury anxiety, anticipation, and increased confidence (e.g., Bianco, 2001; Granito, 2001; Johnston & Carroll, 1998). For example, Tracey (2003) explored emotional responses of college level athletes recovering from moderate to severe injuries over injury onset, rehabilitation and return back to sport. It was found that the athletes reported initially experiencing negative emotions (e.g., anger, depression, feeling down, fear, confusion, frustration, worry and shock). However, unlike previous studies (e.g., Bianco et al., 1999; Johnston & Carroll, 1998), Tracey found athletes to also experience positive emotions and to use negative emotions in a facilitative way towards their recovery.

According to Wiese-Bjornstal et al.'s (1998) model, emotional responses are influenced by a number of personal and situational variables. Researchers have examined self-esteem (e.g., Chan & Grossman, 1988; Leddy et al., 1994), age (Brewer, Linder, & Phelps, 1995; Smith et al., 1990), optimism and hardiness (Ford, Eklund, & Gordon, 2000; Grove & Bianco, 1999; Wadey et al., 2012b), explanatory style (Grove & Bianco, 1999), injury severity (Smith et al., 1990; Smith et al., 1993), athletic identity (Brewer, 1993; Young & White, 1995; Young, White, & McTeer, 1994), and coping skills (Rotella & Heyman, 1993; Weiss & Troxel, 1986). For example, Green and Weinberg (2001) examined athletic identity, coping skills (control arousal, think clearly under stress, set specific goals, engage in problem solving strategies), and social support (individual's perceived satisfaction with the support available) as moderators of mood disturbance and physical self- esteem with the occurrence of injury in recreational participants. This study was conducted with 30 participants, who sustained an injury and were out of sport for a minimum of six weeks.

Findings revealed that higher levels of coping skills and social support were related to lower levels of mood disturbance and higher physical self-esteem.

Coping. Researchers have found sport injury to be a significant source of strain at injury onset, rehabilitation and return back to sport; therefore, it is perhaps unsurprising that researchers have focused their attention on the coping strategies that injured athletes use (e.g., Bianco, Malo, & Orlick, 1999; Evans, Wadey, Hanton, & Mitchell, 2012; Evans, Hardy, & Fleming, 2000). The most widely used coping model in sport psychology is Lazarus and Folkman's (1984) transactional model. Within this model, Lazarus and Folkman defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). This transactional model proposed two coping dimensions: problem-focused coping, and emotion-focused coping. Problem-focused coping refers to strategies to tackle the stressful situation (e.g., planning, active coping, instrumental support), whereas emotion-focused coping refers to managing negative emotions associated with the stressor (e.g., venting emotions, emotional support). Researchers have also proposed another dimension of coping: avoidance coping (e.g., Allen, Greenlees, & Jones, 2011). This type of coping refers to strategies to avoid the situation through distraction (e.g., cognitive distraction) or social diversion (e.g., walking away from the situation).

Although the literature on coping with sport injury is less well developed, recently more research has begun to explore the strategies athletes use to cope with the stressors and stain incurred by injury using both qualitative and quantitative methods (e.g., Appaneal, Levine, Perna, & Roh, 2009; Carson & Polman, 2008; Evans et al., 2006). Researchers have found injured athletes to use problem-focused coping strategies, such as gathering information on the recovery and the rehabilitation process, instrumental coping, and active planning. For example, Carson and Polman (2008) conducted a case study with a professional

rugby union player. Findings revealed that over the duration of his rehabilitation process the participant used short-term goals and gathered information on his rehabilitation to gain a better understanding about how to recover. Injured athletes have also been found to use emotion-focused coping strategies throughout the sport injury process (e.g., Udry, 1997; Wadey et al., 2012b), including venting of emotions, seeking emotional social support positive self-talk, and reframing negative thoughts and emotions to positive attitudes (i.e., positive reinterpretation or positive reframing). For example, one injured athlete reported, "The strategies I used were firstly, tears, crying, letting the emotion out quite heavily over the first few days" (Wadey et al., 2012b, p. 882).

Additionally, injured athletes have been found to use avoidance coping strategies including isolation (Carson & Polman, 2010; Gould et al., 1997b), behavioral disengagement (Gould et al., 1997a; Wadey et al., 2011, 2012a, 2012b), and exhibiting denial and/or tolerating pain (Carson & Polman, 2008; 2010; Tracey, 2003; Wadey et al., 2011). For example, Quinn and Fallon (1999) found that athletes employ behavioral disengagement (i.e., giving up trying to deal with a problem), mental disengagement (i.e., mentally distracting oneself from thinking about the problem), or substance abuse to cope with their injury. Interestingly, Carson and Polman (2010) also explored avoidance coping within sport injury rehabilitation, finding that avoidance coping strategies facilitated control of short-term emotional states, whilst also having long-term benefits (e.g., undertaking alternate work within sporting organizations). However, few researchers have considered the use of coping strategies and their effectiveness. Indeed, Gould et al. (1997b) examined specific coping strategies used by injured athletes finding the athletes to use a combination of problem-focused coping (e.g., setting working towards and accomplishing goals), emotion-focused coping (e.g., managing emotions by expressing them to others), and avoidance coping (e.g., moving to a ski area with less expectations). This study also compared the differences

between the type of coping used by those athletes who successfully recovered and those who were unsuccessful with recovery. Findings revealed that those who recovered successfully often used strategies focusing inwardly such as being able to manage their emotions (e.g., keeping a positive focus) through visualization/mentally preparing and being patient and taking it slow. Those in the unsuccessful recovery were found to use strategies that focused on external sources such as they sought out and use social resources by using other athletes as models. Similarly to the aforementioned research, those who were more successful at recovering took a more active approach to their recovery.

Not all forms of coping are perceived as beneficial. For example, in some cases support from family, teammates, and coaches can play both positive and negative roles (Udry et al., 1997). Udry et al. examined skiers that incurred season-ending injuries, finding that the majority reported positive experiences of the support offered to them from their family and teammates, including emotional support and understanding, motivational support, keeping in contact, and tangible support. This support encouraged the athletes to feel motivated to rehabilitate to return. The athletes' negative experiences of support came mostly from coaches being distant, insensitive to injury, and portraying a lack of belief in athlete's ability to recover from injury, which led to frustration and isolation. Researchers (e.g., Johnston & Carroll, 1998; Mitchell, Evans, Rees, & Hardy, 2014) have also found that individuals not only need social support to cope with sporting injury, but that this support needs to match their needs (i.e., the matching hypothesis). The matching hypothesis proposes the type of social support provided needs to match the demands of the stressor, which will then buffer the strain response (Cohen & McKay, 1984; Hobfoll, 1989; Mitchell, 2011). Overall, it is clear that researchers should not only examine injured athletes' use of coping strategies, but also how effective they are at meeting their needs.

Personality Trait of Hardiness

Conceptualization of hardiness. Hardiness was originally conceptualized by Kobasa (1979) who identified that those high in hardiness possessed three attitudes: commitment, control and challenge (i.e., the 3C's). Specifically, commitment is where one will remain involved in a stressful situation; control is where one will believe they are able to in some way influence the situation or outcome, and challenge is where the individual will embrace the situation as a change and learn through the experience (Maddi, Khoshaba, Harvey, Fazer, & Ressurreccion, 2011). Hardiness has been hypothesized to transform potentially stressful situations into one for growth and development (Maddi, 1998, 2002, 2006). It has been explored in a number of psychology disciplines such as military psychology, health psychology, organizational psychology, and positive psychology (e.g., Alfred, Hammer, & Good, 2014; Bartone, Hystad, Eld, & Brevik, 2012; Escolas, Pitts, Safer & Bartone, 2013; Green, Grant, & Rynsardt, 2007; Orme & Kehoe, 2014; McCallister, Dolbier, Webster, Mallon, & Steinhardt, 2006; Smith & Young, 2004). Recently, more research within the sport psychology literature has begun to explore hardiness (e.g., Hanton, Neil, & Evans, 2013; Madrigal & Gill, 2014; Ramzi, 2010; Sheard & Golby, 2010; Singley, Hale & Russell 2012; Thomas, Reeves, Agombar, & Greenlees, 2013; Yongchul, 2012).

Despite the growth of research exploring hardiness, researchers are still debating whether hardiness should be conceptualized as a unitary construct (i.e., unidimensional) and as three separate components (i.e., multidimensional). Kobasa (1979) originally conceptualized hardiness as a single unitary construct (i.e., combination of commitment, control and challenge). Indeed, Maddi (2002, 2004, 2013) highlighted that no one of the 3 C's will provide the required existential courage and motivation to transform a stressful situation into an opportunity for growth and development. Maddi (2013) reported:

> It is the combination of all 3Cs that constitutes hardiness. People who are simultaneously strong in all 3cs tend to (1) see life as a continuously changing phenomenon that provokes them to learn and change (challenge), (2) think that through this development process they can work on the changes in a fashion that turns them into fulfilling experiences (control), and (3) share this effort and learning in a supportive way with the significant others and intuitions in their lives (commitment). Thus, conceptually, all three Cs of hardy attitudes need to be strong, in order to provide the existential courage and motivation to do the hard work of turning stresses to advantage" (p. 9).

Yet initial studies of hardiness generally analyzed the attitudes as separate dimensions (cf. Carver, 1989), with the rationale being that combining the attitudes can lead to a loss in conceptual clarity. For example, if an individual is considered to be low in hardiness, the difference could be down to commitment or control or challenge, or a combination of these characteristics. It has also been suggested that by using a single composite score of hardiness that it simplifies data analysis and interpretation of the data (Carver, 1989). It has been suggested, therefore, that researchers should not only examine the composite score, but also the individual scores as well.

Hardiness measurement. Early researchers were found to integrate pre-existing scales of similar concepts to create a measure of hardiness, with some reporting the use of 19 sub-scales (Funk, 1992; Hull, Van Trueren & Virnelli, 1987). Many of these of sub-scales were also negative indicators of commitment, control, and challenge rather than assessing hardiness *per se*. For example, a measure of alienation has often been used to assess commitment, or powerlessness to assess control. It is still unclear whether these negative indicators are valid reverse-coded measures of the attitudes of hardiness. Another measurement issue is that a number of the subscales used have not been consistent across

studies, with some studies even using the same subscale to assess different hardiness attitudes. For example, the powerlessness scale was used to indicate commitment in some studies and control in others. This inconsistent use between researchers makes it challenging to compare findings across studies. Hull et al. (1987) reported, "Unfortunately, there now exist nearly as many ways to measure hardiness and its subcomponents as there are people conducting research on the topic. Obviously if progress is to be made in this area, this practice must stop" (p. 521).

More recently, researchers have begun to account for the previous measurement issues, leading to the second generation of hardiness measures: Dispositional Resilience Scale (DRS; Bartone et al., 1989), Personal Views Survey (PVS; Maddi & Khoshaba, 1994), Personal Views Survey-II (PVS-II; Maddi, 1997), and Personal Views Survey-III (PVS-III; Maddi & Khoshaba, 2001). With regard to the DRS, for example, despite some concerns (e.g., the majority of the items are negative indicators and there is no information on its test-retest reliability), the DRS has demonstrated several advantages over previous scales: (a) it includes positive indicators of hardiness; (b) it uses equal numbers of items to measure commitment, control, and challenge; and (c) the items and scoring of the scale are readily available (see Bartone et al., 1989, p. 327-328). In contrast, the PVS and its subsequent versions are only available through the Hardiness Institute as commercial psychometric instruments, making it difficult for researchers to assess their psychometrics properties and those with limited funds. In contrast, Bartone et al. (1989) demonstrated evidence of criterion (i.e., predictive and concurrent) and construct-related validity (i.e., convergent, discriminant, and factorial). High internal consistency for the composite hardiness score and its subscales have also been found, with Cronbach alpha coefficients all being above .85 for hardiness, .75 for commitment, .66 for control, and .62 for challenge (Bartone, 1989; Bartone et al., 1989). For these reasons, and perhaps others, the DRS has become the measurement of choice in

sport psychology research (e.g., Hanton, Evans, & Neil, 2003; Hanton, Neil, & Evans, 2012; Wadey et al., 2012).

Hardiness research. Over the years a number of studies have been conducted to examine how hardiness can enable individuals to experience health and/or performance outcomes. For example, researchers have shown hardiness to be negatively correlated with burnout, blood pressure, heart disease, and signs of psychopathology (Chan, 2003; Contrada, 1989; Kobasa, 1979; Maddi & Khoshaba, 1984; Rhodewalt & Zone, 1989; Simoni & Paterson, 1997). In addition, hardiness has been positively correlated with the maintenance and enhancement of performance, leadership, morale and health despite stressful circumstances (Maddi et al., 2002). For example Waysman, Schwarzwald, and Solomon (2001) examined the contribution of hardiness to long-term positive and negative changes following exposure to traumatic stress with war veterans. Hardiness was found to be associated with lower vulnerability to negative changes and higher levels of positive change. Waysman et al. suggested, therefore, that hardiness could be seen as a resource that promotes the ability to experience psychological growth following traumatic events.

Maddi et al. (2002) proposed that there are a number of mechanisms that individuals high in hardiness use to maintain their health and/or performance: (a) appraisals, (b) coping strategies, (c) social support, and (d) positive health practices. With regard to appraisals, researchers have found that individuals higher in hardiness are more likely to appraise the situation as a challenge and as less stressful than those lower in hardiness (e.g., Chung, 2012; Rhodewait & Agustsdottir, 1984; Rhodewait & Zone, 1989; Schlosser & Sheeley, 1985). For example, Wiebe (1991) conducted a study with undergraduates whereby they completed an evaluative threat task that was manipulated to influence appraisals of the task. Findings revealed participants high in hardiness reported the same objective stressor as less threatening than those low in hardiness.

In terms of coping strategies, hardiness has been associated with problem- and emotion-focused coping strategies (Gentry & Kobasa, 1984; Kobasa, 1982). Ptacek, Smith, and Zanas (1992) found that individuals who appraised the situations as more challenging were associated with higher use of problem-focused coping. Gentry and Kobasa (1984) supported this, proposing that individuals high in hardiness engage in coping styles for the purpose of transforming stressful events into situations that seem to be more manageable. In contrast, those lower in hardiness tend to engage in avoidance coping styles such as cognitive and behavioral disengagement and denial to deal with a stressful situation. These coping styles neither transform the situation nor solve the problem thought to be the source of strain. Several studies show support for a relationship between hardiness and coping strategies, whereby high-hardy individuals use more approach- or problem-focused types of coping strategies and low-hardy individuals use more avoidance coping strategies (e.g., Florian, Mikulincer, & Taubman, 1995; Williams, Wiebe, & Smith, 1992). Maddi (2004) found that individuals high in hardiness were more likely to diminish a stressor by addressing the problem and the emotions associated with it. Those higher in hardiness were more likely to immerse oneself into a stressful circumstance, engage in a supportive pattern of giving and getting encouragement and assistance in addressing and dealing with a stressor rather than avoid it.

Researchers have suggested that those higher in hardiness are likely to seek out and accept social support (Florian et al., 1995; King et al., 1998; Kobasa & Puccetti, 1983; Maddi & Khoshaba, 2005; Williams et al., 1992). For example, within Kobasa and Puccetti's (1983) study they examined hardiness, social assets, and perceived social support as moderators of the effects of stressful life events on illness onset with 170 business executives. Findings from this study revealed that the executives under high stress who perceived support from their supervisors had lower illness scores than those without support. For those lower in

hardiness, perceived family support, on the other hand, showed a negative effect on health. This finding was supported by Eschleman, Bowling, and Alarcon (2010) who conducted a meta-analysis and suggested that individuals higher in hardiness are more likely to be involved across a number of different life domains, such as family, friends, work, and social activities. Being involved within these domains was reported to enable them to develop a rich network of reciprocal relationships. Maddi (2004) also supported this view of a reciprocal relationship highlighting that those individuals higher in hardiness are not only more willing to receive support, but also give support were necessary.

The final mechanism is positive health practices. Researchers have found that those higher in hardiness will engage in positive health practices (e.g., adhering to prescribed rehabilitation program), whereas those lower in hardiness are more likely to engage in more negative health practices which could include excessive alcohol consumption or drug abuse (e.g., Bartone et al., 2012; Maddi, Wadhwa, and Haier, 1996). In one study examining the relationship of hardiness to alcohol and illicit drug use in college students, Maddi et al. (1996) found using self- report and urinalysis highlighted that students low in hardiness consumed more alcohol and used more of marijuana and cocaine. Overall, not only have researchers identified that hardiness is associated with desirable performance and health outcomes, but they have also found how individuals are able to achieve these outcomes. Clearly, these findings have important implications for practitioners.

Hardiness training. Researchers have shown that hardiness can be learned or developed through hardiness training (Khoshaba & Maddi, 1999, 2004; Maddi, 1987, 2002). Maddi (1987) was the first to develop and test a hardiness training program, which taught individuals how to cope more effectively with stressful circumstances and use the resultant feedback from this process to enhance their commitment, control and challenge. Maddi found hardiness training to significantly increase individual's hardiness and decrease signs of strain

(e.g., anxiety and depression) in a sample of 46 managers within a utility company. To further substantiate these findings, Maddi, Khan, and Maddi (1998) attempted to further evaluate the efficacy of the hardiness training in comparison to two other conditions: relaxation/meditation and passive listening. Findings revealed that hardiness training significantly increased levels of hardiness, job satisfaction, and perceived social support levels in comparison to the other groups. Those who received hardiness training also showed a greater decrease in strain and illness severity, compared to those who were in the relaxation/meditation or passive listening group. Maddi, Khoshaba, Jensen, Carter, Lu, and Harvey (2002) further evaluated the efficacy of hardiness training with 40 undergraduate students. This study extended the previous hardiness intervention program by including a social support component (i.e., the giving and receiving of assistance and encouragement), finding that those students who received the hardiness training showed a greater increase in hardiness and grade point average, and a greater decrease in strain compared to a control group. Although the efficacy of hardiness training has not been assessed with competitive athletes yet, it is encouraging to note that hardiness can be developed and learned.

Hardiness research in sport. Within the sport psychology literature, hardiness has been explored with a number of different variables (e.g., performance, competitive levels, mood, coping, and sport injury). The earliest study was by Maddi and Hess (1992) who explored hardiness with basketball performance, finding hardiness to be positively correlated with the number of points scored, assists, rebounds, free throws, steals and games played. This finding supports other research that has observed hardiness to differ across competitive levels (e.g., Golby & Sheard, 2004; Sheard & Golby, 2010; Thomas, Reeves, Agombar, & Greenless, 2013). For example, Sheard and Golby (2010) examined 1,566 athletes from 16 sport classifications, between the ages of 17-42 and across club, county, national and international levels of sport. Findings showed that international competitors scored the

highest levels of hardiness, for all subscales. One reason that could possibly explain why athletes high in hardiness perform better and compete at the highest level is how they manage their competitive anxiety. A number of researchers have examined the relationship between hardiness and anxiety (e.g., Bawa, 2010; Hanton, Evans, & Neil, 2003, Hanton, Neil, & Evans, 2012; Singley, Hale, & Russell, 2012). For example, Hanton et al. (2003) examined hardiness and the competitive trait anxiety response. Results found that athletes high in hardiness had lower levels of somatic anxiety and a more facilitative interpretation of anxiety symptoms towards performance. This finding might be due to the coping strategies employed by athletes high in hardiness. Hanton, Neil, and Evans (2013) recently examined hardiness and coping with 510 collegiate and club sports performers across a variety of sports. Findings revealed those higher in hardiness to report the greatest use of planning, active coping and effort strategies during stressful competitive situations and viewed this use as more effective in dealing stressful situations than those lower in hardiness. Overall, these findings suggest that hardiness is a desirable trait in the context of competitive sport. Not only do athletes higher in hardiness manage their anxiety and cope more effectively than those lower in hardiness, but they also perform better and compete at the highest levels.

Another setting where hardiness has been explored is the context of sport injury (Wadey, Evans, Hanton, & Neil, 2012a, 2012b; Chung, 2012; Madrigal & Gill, 2014). For example, Chung (2012) examined predications concerning the role of the personality factors of hardiness and the situational factor of life stress in prediction cognitive appraisal of injury. This study was conducted with 187 intercollegiate athletes. Findings revealed hardiness to be related with how injured athletes appraised their injuries. Findings indicated that athletes higher in hardiness interpreted their situation more positively and appraised the rehabilitation as less difficult than those lower in hardiness. However, Chung (2012) only examined the relationship between hardiness and sport injury at one time point. This differed to the

research conducted by Madrigal and Gill (2014) who examined optimism and hardiness across four time points of sporting injury (i.e., before their season [time 1], once they became injured [time 2], midway through rehabilitation [time 3], and when they were cleared to participate [time 4]. This research found hardiness to vary over time and across cases. Hardiness was found to increase between time 1 and time 4 for two athletes. However, many of the participants failed to complete all requested questionnaires. Therefore, these limitations meant that this study only gave a glimpse of changes in hardiness across the sport injury process.

Taking a more systematic approach, Wadey, Evans, Hanton, and Neil (2012a, 2012b) examined hardiness throughout the sport injury process (i.e., the prediction of, and response to, sport injury). Findings revealed those individuals higher in hardiness were less likely to get injured generally and more specifically through psychosocial risk factors. If those higher in hardiness did get injured through other means than psychosocial, it was found that they use used transformational coping throughout their recovery. Specifically, they firstly coped with their injury by re-appraising its meaning to them, which lowered their strain responses and enabled problem-focused coping. This coping involved increasing their understanding of not only their injury but also the recovery process, leading them to form a plan-of-action to expedite the rate and quality of their physical and psychological recovery. Despite the merits of this program of research in terms of promoting one's recovery from injury, it failed to fully understand how injured athletes high in hardiness can transform their injury from a potentially deliberating experience into an opportunity for growth and development. After all, this is how hardiness is hypothesized to operate in stressful situations (Kobasa, 1979).

Stress-Related Growth

According to Wiese-Bjornstal et al.'s (1998) integrated model, one desirable process-orientated recovery outcome that injured athletes may experience is stress-related growth,

which is the central dependent variable within this thesis. By growth, researchers mean positive changes resulting from a stressful event that propel an individual to a higher level of functioning than that which existed prior to the stressor (Park et al., 1996). For some time now, researchers have examined stressful and traumatic events across a variety of contexts and situations such as disasters (e.g., Dawson et al., 2014; Lowe, Manove, & Rhondes, 2013), bereavement (e.g., Boelen, 2010; McDevitt-Murphy, Neimeyer, Burke, Williams, & Lawson, 2012) and cancer (e.g., Gugletti et al., 2010; Low & Stanton, 2015). Findings from these studies demonstrate these stressors cause a number of negative and undesirable psychological consequences such as depression, anxiety, and suicide. However, it is interesting to note that a number of other researchers have proposed and subsequently found that people who have experienced trauma or a stressful event may not only recover but may surpass their prior level of functioning (e.g., Carver, 1998; Nolen-Hoeksema & Davis, 2004; Widows, Jacobsen, Booth-Jones, & Fields, 2005). At least three categories of functioning that have been identified to improve (Linley & Joseph, 2004): changes in self-perception, changes in interpersonal relationships, and a changed philosophy. Changes in self-perception include a greater sense of personal strength, resiliency or self-reliance, coupled with developing a new path or opportunities. A change in interpersonal relationships covers increased compassion or altruism, or a greater sense of closeness in relationships. A changed life philosophy involves a greater appreciation for each day, and may include possible changes in religious or spiritual/existential beliefs. However, despite the merits of this research, this body of literature has had a number of conceptual and operational issues.

Conceptual issues. One conceptual issue which is repeatedly highlighted throughout the growth literature is that a number of terms are used to describe this phenomenon. These terms include posttraumatic growth (PTG; Tedeschi & Calhoun, 1996), stress-related growth (SRG; Park, Cohen, & Murch, 1996), perceived benefits (McMillen & Fisher, 1998), thriving

(Whitelock, Lamb, Rentfrow, 2013), positive changes (Joseph, Williams, & Yule, 1993), transformational coping (Aldwin, 1994), construing benefits (Affleck & Tennen, 1996), and adversarial growth (Linley & Joseph, 2004). To help distinguish between these terms, Park (2009) recommended that researchers should consider at least two factors: (a) commonality of occurrence of the stressor under examination. This information will help to differentiate between those events that are considered to be stressful and those which are traumatic. It is advised that the term post-traumatic growth should be used to describe traumatic events experienced by individuals, whereas the term stress-related growth would reflect events that are more common; and (b) whether the individuals are interested in examining perceived or actual growth. Some researchers are interested in actual measurable changes; whereas others are concerned with subjective experiences (cf. Tennen & Affleck, 2002). Based on this criteria, researchers in sport psychology have favored the term SRG, largely because many of stressors examined reflect common rather than rare occurrence in sport (e.g., injury, conflicts, performance slumps), and have been interested in whether athletes believe they have changed in positive ways.

One other conceptual issue that has demanded a lot of attention is perceived vs. actual growth. Some authors are interested in examining perceived growth, whereas other are interested in examining actual or real growth (Park, 2009). Those interested in perceived growth argue that the concept of actual growth is a quaint notion that cannot be measured (Tennen & Afflect, 2002). Indeed, they suggest that perceptions of growth, regardless of whether they are grounded in perceptions of reality, are what make a difference in people's lives. Alternatively, other researchers are interested in examining actual growth, as they raise concerns about the validity of self-reports of growth (e.g., Cohen, Cimbolic, Armeli, & Hettler, 1998; Park, 2004; Park & Lechner, 2006; Wortman, 2004). For example, some researchers have suggested that individuals might report experiencing growth because they

want to appear to be coping well and/or because they believe that is what their social network members want to hear. Therefore, they recommended measuring actual growth, which has been assessed to-date by using self-report measures prior to and following the adverse stressor. Interestingly, findings have observed a lack of correspondence between self-reported change (measured retrospectively) and actual change (measured prospectively) (Frazier et al., 2009; Gunty, Frazier, Tennen, Tomich, Tashirol, & Park, 2011). Therefore, perceived and actual growth might represent two different constructs. Overall, it is recommended that future researchers align their conceptualization of growth (i.e., perceived or actual) with the intended methodology and methods. Perceived change will involve using self-report measures that can be assessed retrospectively, whereas actual growth will need to be assessed prospectively and ideally use more objective indicators other than self-report (e.g., behaviors or biological indices).

Growth measures. Many self-report instruments have been published to measure growth: Revised Stress-Related Growth Scale (RSRGS; Armeli, Gunthert, & Cohen, 2001), Thriving Scale (TS; Abraido-Lanza, Guier, & Colin, 1998), Changes in Outlook Questionnaire (CiOQ; Joseph, Williams, & Yule, 1993, 2005), and Perceived Benefit Scale (PBS; McMillen & Fisher, 1998). The two most well-established measures of growth used throughout literature are the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1995, 1996), which measure growth across five dimensions: (a) relating to others, (b) new possibilities, (c) personal strength, (d) spiritual change, and (e) appreciation of life. The other measure is the Stress-Related Growth Scale (SRGS; Park et al., 1996), which is a 50-item measure that assesses a range of positive life changes, from changes in relationships with others (e.g., increased empathy and compassion) to changes in the sense of self (e.g., increased sense of personal resiliency). Both scales have been shown to have a good internal reliability with a Cronbach's alpha of .90 for the PTGI and .94 for the SRGS, as well as

adequate test-retest reliability (.71 and .81). In terms of validity, both measures have been shown to have adequate content, divergent, convergent, and factor validity (Tedeschi, Park and Calhoun, 2009). For example, Park et al.'s (1996) research with the SRGS to test validity consisted of asking friends or family of the participants to complete the SRGS stating any types of changes they had seen in student as a result of a specific negative event that had occurred. Findings revealed that the students' mean scores on the SRGS did not significantly differ from those provided by their friends and relatives. Researchers in sport psychology are encouraged to align their choice of method with their conceptualization.

Theories and models. A number of theories (e.g., Shattered Assumptions Theory; [Janoff-Bulman, 1992], Affective-Cognitive Processing Theory [Joseph, Murphy & Regal, 2012], Organismic Valuing Theory [Joseph & Linley, 2006]) and models (e.g., Comprehensive Model of Posttraumatic Growth [Tedeschi & Calhoun, 1995, 2004], Model of Life Crisis and Personal Growth [Schaefer & Moos, 1992], Meaning Making Model [Park & Folkman, 1999], Janus-Face Model [Maercker & Zoellner, 2004]) have been developed to explain and describe growth. The most widely recognized and researched model is the Comprehensive Model of Posttraumatic Growth (Tedeschi & Calhoun, 1995, 2004) (See Figure 2). This model was developed from Schaefer and Moos's (1992) conceptual model of positive life crises and transitions. This model highlights that personal, environmental, social and cultural factors influence how an individual will respond to a traumatic event. This model suggests that when an individual experiences a traumatic or stressful event, it shatters key elements of a person's important goals and worldviews. Individuals must then find ways to manage the initial stress, which is often debilitating. At this stage individuals will then engage in intrusive rumination (i.e., frequently thinking about the stressful event). Individuals can lower the negative effects of this intrusive rumination (e.g., manage emotions, lower distress) through engaging in self-disclosure (talking or writing), after which rumination is

suggested to become more deliberate. This deliberate rumination is where one will repeatedly think things over, problem solving, trying to make sense of the situation and perhaps searching for how the struggle has changed one in positive ways. This would involve analyzing the new situation and finding meaning, in an attempt to repair, restructuring, or rebuilding of the individual's general way of understanding the world. If this process is successful then it leads to successful disengagement from previous goals and assumptions. This process however, can take some time, which in turn leads to growth. This cognitive process would lead one to experience growth. It is suggested that this ongoing process enables one to develop wisdom about general life and further development regarding the narrative people have about their life

A theory that aims to provide a more fine-grained understanding of the underlying mechanisms leading to growth is the Organismic Valuing Theory (OVT; Joseph and Linley, 2006) (See Figure 3). This theory is similar to the Comprehensive Model of Posttraumatic Growth model (e.g., appraisal and social support leads to growth). When confronted with an adverse event, the theory suggests that it will have shattering effect on a person's assumptive world, which can have adverse effects (e.g., intrusive and avoidance states) that can be difficult to manage. This theory proposes that when this occurs it is human nature is to strive to integrate the new experiences in an attempt to cope. The person's natural tendency is to accommodate the traumatic information, which requires one to revise their assumptive world to take into account the trauma-related information. In the early stages following a traumatic event, there is a search for meaning (e.g., what happened, how, and why?). As people deal with this information, they first seek to understand the event retrospectively. However, this is challenging and requires a supportive social environment that promotes the basic psychological needs for autonomy, competence, and relatedness. To the extent that these needs are met then one will tend to lean towards positive accommodation of the traumatic

information. If positively accommodated, this search for significance leads to growth as people re-evaluate and more fully appreciate their relationships, their strength and resilience, and their philosophy of life. To the extent that these needs have not been met by the post-trauma environment, the person will tend toward negative accommodation (e.g., hopelessness). If the person does not engage with the significance of the event, but instead attempts to retain their pre-trauma schema, the organismic valuing process will not operate and the person tends toward assimilation, which means the trauma-related information is perceived in such a way as to be consistent with pre-existing beliefs which leaves their assumptive world fragile and open to subsequent traumatization.

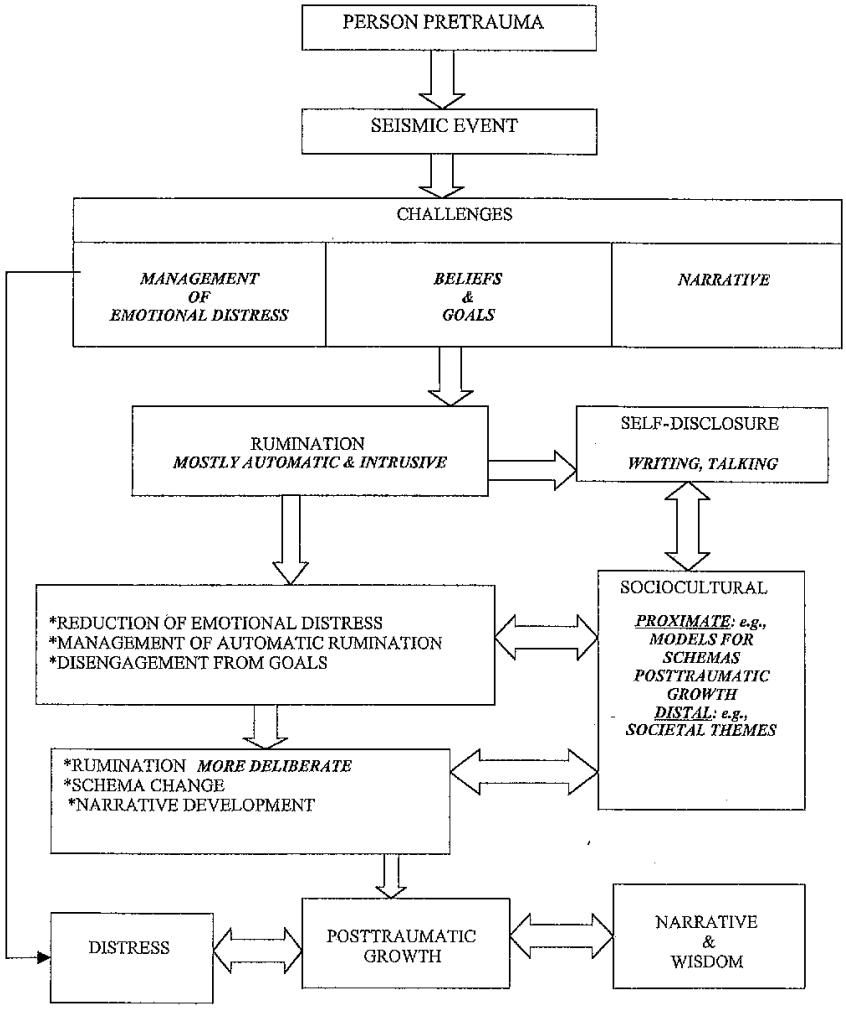

Figure 2. Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Enquiry, 15,* 1-18

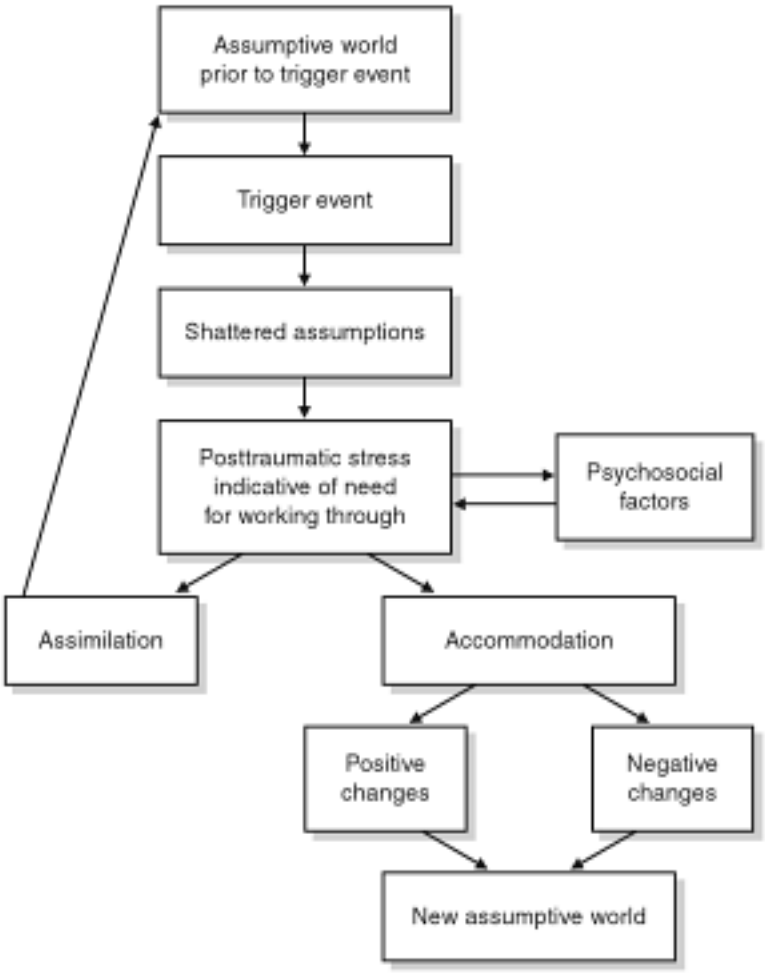

Figure 3. Joseph, S., & Linley, P. A. (2008). *Trauma, recovery and growth. Positive psychological perspectives on posttraumatic stress*. New Jersey: Wiley & Sons.

Growth research. Growth has been examined following a number of traumatic and stressful events such as sexual assault (e.g., Frazier, Tashiro, Berman, Steger, & Long, 2004; Ullman, 2014), cancer (e.g., Galla, Charbonneau, & Florack, 2011; Rinaldis, Pakenham, & Lynch, 2012), and bereavement (e.g., Currier, Holland, & Neimeyer, 2012; Currier, Mallot, Martinez, Sandy, & Neimeyer, 2013). As a result of the increased research attention this concept has received this century, a number of reviews have been published (e.g., Linley & Joseph, 2004; Ramos & Leal, 2013; Zoellner & Maeker, 2006). Hefferon, Grealy, and Mutrie (2008) conducted a recent systematic review of the growth literature. Drawing from 57 qualitative studies, this review found four growth dimensions: (a) reappraisal of life and

priorities (e.g., participants began to engage in both positive and negative reappraisal of their life and restructure life priorities), (b) trauma equals the development of self (e.g., a development of a stronger and more empathetic self), (c) existential re-evaluation (e.g., finding reasons/making meaning from the illness), and (d) a new awareness of the body (e.g., development of improved health behaviors following the diagnosis of illness). Interestingly, only a few of the studies aimed to examine growth. The majority of studies reported the growth as a serendipitous finding. Furthermore, this body of research is largely descriptive, in that is fails to examine the mechanisms underlying this phenomenon.

Growth has also been quantitatively examined, with researchers using a number of different independent variables including: negative emotions (e.g., Aldwin et al., 2003; Frazier et al, 2001; Sears et al., 2003), health (e.g., Tennen, Affleck, Urrows, Higgins, & Mendola, 1992), personality (e.g., Prati & Pietrantoni, 2009), written disclosure (e.g., Gortner et al, 2006; Stockton, Joseph, & Hunt, 2014) and coping (e.g., Linley et al., 2011 Prati & Pietrantoni, 2009). For example, within Prati and Pietratitoni's (2009) meta-analytic review, they reviewed the relationships between the personality trait of optimism and coping strategies with growth. Findings revealed that optimism, social support, spirituality, acceptance coping, reappraisal coping, religious coping, and seeking support coping were positively associated with growth. Findings support the Comprehensive Model of Growth (Tedeschi & Calhoun, 2004) and the Organismic Valuing Theory (OVT; Joseph & Linley, 2005). Social support was found to foster a more favorable appraisal of the event and more effective coping strategies.

Growth research in sport and exercise. The concept of growth has recently gained increased attention in the discipline of sport and exercise psychology. From reviewing the literature, this body of literature can be divided into four broad themes: (a) growth in athletes

across the lifespan, (b) growth in athletes following diverse stressors, (c) using exercise as a vehicle to promote growth in clinical populations, and (d) growth following sport injury. Growth in athletes across a lifespan was demonstrated within Connaughton, Wadey, Hanton and Jones's (2008) study; this study however, did not set out to specifically examine growth. Within this research mental toughness was found to develop over three phases (i.e., early years, middle years, and later years). One of the key factors leading to the development of mental toughness was overcoming a number of setbacks. Connaughton, Hanton and Jones (2010) further developed on this work by examining the development and maintenance of mental toughness but with eleven super elite participants. Findings revealed that this process occurred over four distinct career phases: three developmental phases, and one maintenance phase. Factors influencing development and maintenance included: skill mastery, competitiveness, successes, international competitive experience, education and advice, the use of psychological skills, access to an understanding social support network, and reflective practice. In addition, positive (e.g., recognition of talent by respected individuals) and negative critical incidents (e.g., parental divorce) were perceived by participants to act as catalysts in initiating or enhancing specific components of mental toughness. This is consistent with research examining other populations, who have found adversity to lead to growth (e.g., increased resilience and toughness).

Interestingly, Howells and Fletcher (2015) recently explored growth-related experiences in Olympic swimming champions by examining eight autobiographies. This type of data collection has become an established source of empirical data in a number of disciplines, (e.g., criminology, psychology, sociology; Morgan, 1999, Suedfeld & Weiszbeck, 2004, Shamir, Dayan-Horesh, & Adler, 2005). Howart (1974) suggested that autobiographies provide a self-portrait of the athlete, providing a retrospective account of their experiences. Autobiographies provide an understanding of sport performers'

experiences, particularly when they involve significant adversity. Findings within Howell's and Fletcher's (2015) study revealed that the swimmers initially perceived their adversity-related experiences (e.g., living with family dysfunctions, eating disorders and injury) to be traumatic and attempted to cope by maintain a state of normality, chose to not disclose their thoughts and feelings, and developed multiple personalities. The swimmers reported realizing that these strategies were maladaptive and further enhanced the effects of their adversity. Findings related to aspects of the Comprehensive Model of Posttraumatic Growth (Tedeschi & Calhoun, 2004) which highlighted the importance of engaging in self-disclosure which enables individuals to lower the negative effects of any intrusive rumination they might be experiencing. The swimmers began to seek meaning in their experiences and consistent the OVT (Joseph & Linley, 2005) and the findings of previous research exploring growth in sport performers (e.g., Galli & Reel, 2012a; Tamminen et al., 2013), turning to others for support. This strategy was necessary for the swimmers to experience growth, which was highlighted through superior performance (e.g., develop an edge over the competition), enhanced relationships (e.g., connect with my many friends), spiritual awareness (e.g., things happen that can never be explained, and pro-social behavior (e.g., providing empathy towards others). Although there are limitations with using autobiographies as a source of data (e.g., the private meanings interpreted during the analysis may be beyond the scope of the disclosure intended by the authors) (Harrison & Lyon, 1993), this method opens up another way of knowing in the pursuit of increasing our knowledge and understanding of this concept.

Sport psychology researchers have tried to better understand growth in athletes following diverse stressors, such as acute stressors experienced by competitive athletes (e.g., Galli & Reel, 2012; Tamminen et al., 2013). Tamminen et al. (2013) examined growth within a sport context with five female athletes finding participants sought and found meaning in

their experiences, identifying growth associated with social support and also as they realized the role of sport in their lives. Aspects of growth included realizing strength, gaining perspective of their problems, and gaining a desire to help others. Similar findings were established by Galli and Reel (2012b) in a study that was conducted with 11 intercollegiate athletes who took part in a variety of sports. Findings revealed that social support enabled the athletes to work through the disruptions caused by stressors (e.g., finding a balance between schoolwork, training, and maintaining relationships with friends). Similar to Tamminen et al. (2013) the athletes within Galli and Reel's study experienced psychological growth. This growth was in the form of new life philosophy (i.e., increased appreciation, change perspective on life/sport, increase spirituality), self-changes (i.e., increased personal strength, better life/sport functioning) and interpersonal changes (i.e., changed relationships, increased self of altruism). Although these preliminary studies have helped to identify dimensions of growth in competitive athletes and the mechanisms underlying its development (e.g., social support), it is important to recognize that Tamminen et al. only interviewed five elite females across various stressors and Galli and Reel only interviewed intercollegiate athletes. Clearly, more research needs to be done to explore a more diverse range of athletes, more attention is needed to growth following specific stressors, as well as exploring alternative ways of understanding this phenomenon (e.g., a quantitative approach, narrative inquiry). These avenues of research will help provide a more complete understanding of growth.

Growth has also been examined in a sport and exercise context as vehicle to promote growth in clinical populations (Burke & Sabiston, 2010; Ford & Gordon, 1999; Galli & Reel, 2012; Hefferon, Grealy, & Mutrie, 2008; Howells & Fletcher, 2015; McDonough, Sabiston, & Ullrich-French, 2011; Podlog & Eklund, 2006; Sabisiton, McDonough, & Crocker, 2007). In terms of exercise and growth, a number of researchers have examined the relationship between growth and physical activity in cancer survivors (Burke & Sabiston 2010; Hefferon

et al., 2008, Love & Sabiston 2011; Sabiston et al. 2007). For example, McDonough, Sabiston and Ullrich-French (2011) explored growth experiences following a dragon boat program with 17 breast cancer survivors. Findings revealed that taking part in the dragon boat program led to a number of positive outcomes. For example, their social support network gave them an opportunity to discuss concerns with other breast cancer survivors which led to them developing positive social relationships. Participants also reported an interest in helping others through dragon boating, highlighting that it was a reciprocal relationship. Participants recalled that taking part in the program enabled them to focusing on athletic achievement, allowing them to de-emphasize breast cancer. Specifically, the evidence suggests that participation in exercise facilitates positive psychosocial growth in cancer survivors by allowing them to gain a sense of control, embrace life, develop new identities and overcome physical challenges (Burke & Sabiston, 2010; Hefferon, Grealy, & Mutrie, 2008; Mustain, Katula, & Gill, 2002).

Growth research and sport injury. One stressor that has been linked to growth is sport injury. Typically, the psychology of sport injury literature has considered injury to be a negative event with undesirable consequences; however, recently there has been a shift in the literature. Wadey, Evans, Evans, and Mitchell (2011) suggested that to provide a more balanced, complete understanding of the sport injury experience, not only do both positively and negatively toned consequences need to be explored, but also how they interact with one another. Indeed, although previous research has provided important insights into the stressors (e.g., incapacitation and rehabilitation setbacks), negatively-toned responses (e.g., grief and depression), and suboptimal outcomes (e.g., not returning to one's pre-injury level of functioning) experienced by injured athletes, more recently researchers have conducted studies that complement this body of literature by exploring desirable concepts such as

growth (e.g., Podlog, Dimmock, & Miller, 2011; Tracey, 2011; Wadey, Evans, Hanton, & Neil, 2012).

Udry et al. (1997) were the first researchers that aimed to examine growth following sport injury. Twenty-one skiers who had suffered season-ending injuries were interviewed. Although the skiers did discuss feelings of frustration and worry throughout their recovery, 20 of the skiers reported experiencing growth. Three dimensions of growth were found: (a) personal growth, (b) psychologically based performance enhancements, and (c) physical/technical development. Personal growth included gaining perspective (e.g., clarified priorities), personality development (e.g., enhanced empathy), developing aspects related to non-skiing life (e.g., developed different sides of self), and learned better time management (e.g., learned to meet deadlines). Psychologically based performance enhancements referred to increased efficacy/toughness (e.g., mentally tougher), enhanced motivation (e.g., learned whole new work ethic), and realistic expectations (e.g., learned what can/cannot do). Finally, physical/technical developments constituted skiing technically better (e.g., learnt to ski smarter) and physical health improvements (e.g., got stronger than ever before). Altogether, 81 raw data themes were identified. Interestingly, one athlete reported, "People would always say to me 'you don't know what you have got until you lose it.' But I never understood how important skiing was to me until it was complete taken away from me" (p. 240). This study highlighted that one of the skiers was unable to experience any benefits, demonstrating that although some injured athletes experienced growth, others are not. Clearly, researchers need to understand for whom and under what conditions does growth occur.

Since Udry et al.'s (1997) study, a number of subsequent studies have gone to on directly examine perceived growth following injury (e.g., Day, 2013; Smith & Sparkes, 2005; Tracey, 2011; Wadey et al., 2013; Wadey et al., 2011) or reported it as a serendipitous finding (e.g., Bianco, Malo, & Orlick, 1999; Ford & Gordon, 1999; Hurley, Moran, &

Guerin, 2007; Podlog & Eklund, 2006, 2009; Podlog, Wadey, Stark, Lochbaum, Hannon, & Newton, 2013; San Jose, 2003). For example, Podlog and Eklund (2006) conducted a longitudinal investigation of athletes' return to sport from an injury. Twelve injured athletes were interviewed 2–3 times each over an 8-month period in order to explore their experiences from the time that they resumed training with teammates until 6–8 months post-return. Similar to the Udry et al. (1997) study, Podlog and Eklund found that 10 of the 12 athletes identified benefits from their injury experience. Upon returning to competition, growth such as having a new perspective on sport and a renewed passion for playing were noted by several of the athletes. Despite demonstrating that injured athletes' derived growth from their injury experience, these studies failed to explain the mechanisms that led to this growth.

More recently, Wadey et al. (2011) aimed to extend this research by examining the antecedents and mechanisms by which athletes derive growth following injury. The study was a qualitative exploration of 10 rugby, soccer and basketball players who sustained lower limb injuries lasting from 2 to 27 months. Specifically, the study found a number of mechanisms leading to growth: four at injury onset (e.g., strengthened social network), 12 at rehabilitation (e.g., increased knowledge of anatomy) and three on return back to sport and/or competition (e.g., ability to emphasize with injured athletes). For example, the participants noted that the onset of their injury was incapacitating, and required them to mobilize their social support. This social exchange resulted in strengthening their social network. The athletes noted that the rehabilitation process resulted in an inability to train and compete, giving them the chance to assist their coach and resulting in improved tactical/technical awareness. The mechanisms highlighted within this study encompass some of the components within the Comprehensive Model of Posttraumatic Growth Model (Tedeschi & Calhoun, 2005), and the OVT (Joseph & Linley, 2005), including the importance of disclosing and mobilizing one's social support. However, this study is limited in that it only

explored male athlete experiences from team sports. Future research should consider a more diverse range of athletes. In addition, although some of the mechanisms underlying growth have been identified, it is not yet clear is who is more likely to experience growth (i.e., personal factors).

Summary and Recommendations for Future Research

There have been two recent lines of research in the psychology of sport injury; one which has explored the effect of hardiness of athletes' psychological recovery from injury and another that describes injured athletes' experiences of growth. This program of research aims to integrate these two bodies of research by examining the relationship between hardiness and SRG. Indeed, Udry et al. (1997) recommended that future researchers should identify the personal factors that can affect growth. Considering that hardiness has been conceptualized to transform adversity into an opportunity for growth and development (Maddi et al., 2011), this line of research has the potential to offer important insights into our knowledge and understanding of growth following sport injury, as well as how practitioners can best work with injured athletes to instill growth. Consistent with Wiese-Bjornstal et al.'s (1998) theoretical model, the purpose of this thesis, therefore, is to examine the relationship between hardiness and SRG. The aims of this thesis were threefold:

- To explore the relationship between hardiness and SRG, and the mechanisms that mediate this relationship
- To explain in depth *how* injured athletes high in hardiness are able to promote SRG, and explore *why* their low hardiness counterparts are unable to foster such perceived benefits
- To evaluate an intervention to promote SRG in athletes' low in hardiness following a sport injury.

Chapter 2: Examining the Relationship between Hardiness and Perceived Stress-Related Growth in a Sport Injury Context (Study 1)

Abstract

This study examined the relationship between hardiness, coping and perceived stress-related growth (SRG) in a sport injury context. Due to the exploratory nature of the study, a cross-sectional design was employed, whereby 206 previously injured athletes (148 male, 58 female, M_{age} = 22.23 years) who had recently returned to sport completed three questionnaires: Dispositional Resilience Scale, Stress-Related Growth Scale, and Brief COPE. Pearson product-moment correlations and Preacher's and Hayes's (2008) bootstrapping procedure were used to analyze the data. Findings revealed a significant positive relationship between hardiness and perceived SRG. Two coping strategies were found to mediate this relationship: emotional support and positive reframing. That is, the reason why athletes higher in hardiness had higher SRG scores is because they reported greater use of their social support for emotional reasons (e.g., moral support, sympathy or understanding) and were able to construe their injury in positive terms. These findings support some of the central tenets of Joseph and Linley's (2005) organismic valuing theory and provide implications for professional practice. Future researchers should embrace qualitative inquiry to enhance the interpretability and meaningfulness of these findings (e.g., interpretative phenomenological analysis, narrative analysis), and use prospective, longitudinal pre-to-post sport injury designs to further substantiate them.

Introduction

There has been a shift in the psychology of sport injury literature, from the dominant focus on the negative consequences following injury, to a more inclusive approach that accounts for positively valenced subjective experiences, individual traits, and resources in the environment (e.g., Crawford, Gayman, & Tracey, 2014; Podlog & Eklund, 2006; Wadey, Clark, Podlog, & McCullough, 2013). This shift is encouraging in that Wadey, Evans, Evans, and Mitchell (2011) suggested that to provide a more balanced, complete understanding of the sport injury experience, not only do both positively and negatively toned consequences need to be explored, but also how they interact with one another. Indeed, although previous research has provided important insights into the stressors (e.g., incapacitation and rehabilitation setbacks), negatively-toned responses (e.g., grief and depression), and suboptimal outcomes (e.g., not returning to one's pre-injury level of functioning) experienced by injured athletes, more recently researchers have conducted studies that complement this body of literature by exploring desirable concepts such as personal growth, dispositional optimism, and self-determination (e.g., Podlog, Dimmock, & Miller, 2011; Tracey, 2011; Wadey, Evans, Hanton, & Neil, 2012a). For example, Podlog et al. (2011) used the self-determination theory to guide interventions for injured athletes returning to competitive sport that aim to promote an environment that satisfies the three human psychological needs of competence, relatedness, and autonomy in order to minimize negative responses and maximize positive outcomes. This could be considered to be a more inclusive approach and has the potential to provide valuable insights for practitioners who aim to buffer injured athletes' against negative consequences, as well as fostering desirable responses and recovery outcomes.

One positively valenced subjective experience that is gaining increased research attention in sport and exercise psychology generally, and the psychology of sport injury

specifically, is one's perceptions of growth following a stressful or traumatic experience. In terms of growth, this is perceived positive changes that propel the individual to a higher level of functioning than that which existed prior to the stressor (cf. Carver, 1998). Taken together, the research that has been conducted thus far across the discipline of sport and exercise psychology can be considered at a macro-, meso- and micro-level. A macro-level perspective considers the effect demanding stimuli have over an individual's career (e.g., Connaughton, Wadey, Hanton, & Jones, 2008; Day, 2013; Galli & Reel, 2012). A meso-level perspective is concerned with a more finite time period; for example, Burke and Sabiston's (2012) investigation of breast cancer survivors' perceived growth after scaling Mt. Kilimanjaro. Finally, a micro-level perspective explores a specific 'snap-shot' of an individual's experiences at any one given moment in time, which has been the approach typically taken to explore positive changes experienced by injured athletes once they have returned to sport (e.g., Udry et al., 1997; Wadey et al., 2012). However, although the application of perceived growth is gaining research attention following various conditions and across different contexts, one issue surrounding this concept is that researchers continue to refer to this concept with a variety of terms (e.g., post-traumatic growth, stress-related growth, perceived benefits, thriving), which perpetuates conceptual ambiguity. Considering the choice of terminology is not trivial, Wadey et al. (2012) recently recommended that researchers should justify the terms they employ. For this study, the term perceived stress-related growth (SRG) was used for two reasons: (a) the researcher was interested in perceptions of growth rather than veridical growth; and (b) 'stressful' event (e.g., sport injury) rather than a 'traumatic' experience (i.e., severe events or conditions involving threat to life) was examined.

One of the first studies that aimed to observe perceived SRG following sport injury was by Eileen Udry and her colleagues who conducted a program of research with injured U.S. elite skiers who had suffered season-ending injuries. Using a semi-structured interview

guide, Udry et al. (1997) found the participants to report three dimensions of perceived SRG: (a) personal growth, (b) psychologically based performance enhancements, and (c) physical/technical development. Personal growth included gaining perspective (e.g., clarified priorities), personality development (e.g., enhanced empathy), developing aspects related to non-skiing life (e.g., developed different sides of self), and learned better time management (e.g., learned to meet deadlines). Psychologically based performance enhancements referred to increased efficacy/toughness (e.g., mentally tougher), enhanced motivation (e.g., learned whole new work ethic), and realistic expectations (e.g., learned what can/cannot do). Finally, physical/technical developments constituted skiing technically better (e.g., learnt to ski smarter) and physical health improvements (e.g., got stronger than ever before). Altogether, 81 raw data themes were identified. Considering that many of these positive changes have been reported in other fields of research to be associated with heightened sporting performance, improved subjective well-being, and reduced risk of (re)injury occurrence (cf. Connaughton et al., 2008; Williams & Andersen, 1998), it is clear that this concept may have important practical implications in terms of enabling injured athletes to successfully return to sport.

Since Udry et al.'s (1997) study, a number of subsequent studies have gone to on directly examine perceived growth following injury (e.g., Smith & Sparkes, 2005; Tracey, 2011; Wadey et al., 2013; Wadey et al., 2011) or reported it as a serendipitous finding (e.g., Bianco, Malo, & Orlick, 1999; Ford & Gordon, 1999; Hurley, Moran, & Guerin, 2007; Podlog & Eklund, 2006, 2009; Podlog, Wadey, Stark, Lochbaum, Hannon, & Newton, 2013; San Jose, 2003). Collectively, the aforementioned body of research has shown that male and female athletes, from team and individual sports, across various levels of competition, and with different types of injuries have transformed their injury from a potentially debilitating experience into an opportunity for growth and development. However, one interesting finding

to emerge from previous research is that while some injured athletes' perceive growth, others do not. Indeed, Udry et al. (1997) reported, "One skier was unable to identify any benefits associated with being injured" (p. 244). Consequently, they recommended that future research should identify the personal and situational factors that can affect growth and explain the mechanisms through which they operate. This recommendation aligns with the Integrated Model of Psychological Response to Sport Injury and Rehabilitation, which was first published by Wiese-Bjornstal, Smith, and LaMott in 1995 and later revised in 1998 (Wiese-Bjornstal, Smith, Shaffer, & Morey, 1998). The integrated model posits that both pre- and post-injury variables affect how an athlete will respond to and rehabilitate from injury. Pre-injury factors comprise of personality (e.g., hardiness), history of stressors (e.g., daily hassles), coping resources (e.g., psychological skills), and interventions (e.g., stress management). After an athlete has incurred an injury, personal factors (e.g., personality) and situational factors (e.g., type of sport) are suggested to moderate cognitive, emotional, and behavioral responses to injury, which in turn affect recovery outcomes, such as returning to a higher level of functioning (e.g., perceived SRG). Although this model does not explain how these pre- and post-injury factors might affect perceived SRG, it does have the potential to provide a comprehensive understanding of when and for whom an injury will lead to perceived SRG.

One personal disposition that has been conceptualized to transform stress into an opportunity for growth and development is the personality trait of hardiness. Kobasa (1979) observed that those individuals who experienced adversity and were able to cope effectively possessed three resilient attitudes that conceptualize hardiness: commitment, control, and challenge (i.e., the 3Cs). Specifically, commitment is a, "tendency to involve oneself in (rather than experience alienation from) whatever one is doing or encounters" (Kobasa, Maddi, & Kahn, 1982, p. 169); control is a, "tendency to feel and act as if one is influential

(rather than helpless) in the face of the varied contingencies of life" (Kobasa et al., 1982, p. 169); and challenge is the, "belief that change rather than stability is normal in life and that the anticipation of changes are interesting incentives to growth rather than threats to security" (Kobasa et al., 1982, p. 169-170). Maddi (2002) suggested that these attitudes provide the courage and motivation to use the hardiness actions that transform stressful situations from potential disasters into health and performance advantages. These actions cluster around three behaviors and cognitions: (a) social support, (b) positive health practices, and (c) transformational coping. In terms of transformational coping, for example, an individual high in hardiness is suggested to take a number of progressive steps to address not only the stressful event but also the strain it arouses (i.e., integration of problem- and emotion-focused coping). These steps involve broadening one's perspective to lower strain responses, increasing one's understanding of the stressful event and its aftermath to devise a plan-of-action, and implementing the plan-of-action to resolve and learn from the experience rather than avoiding it (Maddi, 2002).

The few researchers who have explored the effect of hardiness in the context of sport injury have revealed that it can facilitate athletes' recovery. In 1990, Grove, Stewart, and Gordon found that hardiness was negatively related to mood disturbance following injury, and Ford, Eklund, and Gordon (2000) observed a negative association with time-loss from injury (i.e., those higher in hardiness returned to sport sooner than their counterparts). Despite these preliminary isolated studies, only recently has hardiness been explored systematically. Wadey, Evans, Hanton, and Neil (2012a, 2012b) examined hardiness throughout the sport injury process (i.e., the prediction of, and response to, sport injury). In terms of responses to injury, the researcher was interested in examining the effect hardiness has on injured athletes' psychological responses and coping strategies over time. Post-injury findings revealed those individuals higher in hardiness used transformational coping throughout their recovery.

Specifically, they coped with their injury in three progressive phases: (a) re-evaluated their injury and own thoughts (e.g., imagined how their injury could be worse), which lowered their strain responses and enabled problem-focused coping; (b) increased their understanding of their injury and the recovery process, which allowed them to form a realistic, yet progressive rehabilitation program; and (c) executed the program to resolve and transform their experience from a potentially debilitating encounter into an opportunity for growth and development. Although this program of research did find athletes higher in hardiness to report that they had experienced perceived growth, it is important to acknowledge that this was not the central aim of these studies. In terms of the relationship between hardiness and perceived growth therefore, the findings are tentative and descriptive rather than explanatory.

Taken together, two main themes can be synthesized from the research that has explored perceived growth in a sport injury context to-date. First, the majority of athletes' perceive they gain positive changes following their injury experiences, whether these changes reflect 'actual' growth is another research question altogether. However, one issue with this theme is that all the research that has been conducted to-date has used qualitative inquiry; therefore, some scholars would suggest that this body of literature is limited in terms of its generalizability. Second, not all injured athletes' perceive growth (cf. Udry et al., 1997), which suggests–in line with Wiese-Bjornstal et al.'s (1998) integrated model–that future researchers need to explore the personal and situational factors that may affect perceived growth and explain how these factors operate. With these themes in mind, the aim of this study is to conduct a quantitative study that explores the relationship between hardiness and perceived SRG. Based on previous research (Wadey et al., 2012b) and consistent with the integrated model (Wiese-Bjornstal et al., 1998), the following hypotheses for this study were established: (a) hardiness will have a positive relationship with perceived SRG; and (b) coping will mediate this relationship. Specifically, those higher in hardiness will more likely

report greater SRG because they use more problem- and emotion-focused coping strategies (i.e., transformational coping).

Method

Participants

The sample comprised of 148 males and 58 females (N = 206) with a mean age of 22.23 years (SD = 6.50). The participants represented 10 team and 23 individual sports from recreational to elite standards of competition, with an average of five years' experience at their current level. Each participant had been injured through sport within two years prior to the outset of the study, with a variety of injuries, including fractures, dislocations, strains, or sprains of different body parts. The time loss from training and/or competition ranged from four to 154 weeks (M_{weeks} = 24.66; SD = 30.11).

Measures

Hardiness. Dispositional Resilience Scale (DRS; Bartone, Uranso, Wright, & Ingraham, 1989) was used to measure hardiness and its subcomponents: commitment, control and challenge. The DRS contains 45 statements about general life (e.g., "Most days, life is really interesting and exciting for me" and "Planning ahead can help avoid most future problems") – 15 items for each subcomponent. Each participant was asked to indicate the truthfulness for each statement on a 4-point Likert scale anchored at 0 (*not at all true*) and 3 (*completely true*). Scores for each subcomponent range from 0 to 45. The composite hardiness scored ranges from 0 to 135. Cronbach's alpha coefficients of .74 for hardiness composite, .78 for commitment, .69 for control, and .68 for challenge were found in this study.

Perceived SRG. The Stress-Related Growth Scale (SRGS; Park, Cohen, & Murch, 1996) was used to assess perceived SRG. SRGS is a 50-item one-dimensional questionnaire designed to assess individuals' perceptions of whether they experience positive outcomes

following a stressful event (e.g., "*I developed new relationships with helpful others*" and "*I learned that I was stronger than I thought I was*"). To ascertain athletes' perceptions of stress-related growth, the original stem was modified from "*Rate how much you experienced each item below as a result of this year's most stressful event*" to "*Rate how much you experienced each item below as a result of your injury*". Participants were asked to rate each item from 0 (*not at all*), 1 (*somewhat*) or 2 (*a great deal*). Park et al. observed the SRGS to have content, criterion and construct validity. In the validation sample, Cronbach's alpha was .94 and two-week test-retest reliability was .81. A Cronbach's alpha of .96 was found in this study.

Coping. Brief COPE (Carver, 1997) was used to assess coping. The questionnaire was a situation-specific version, which asked the participants to reflect on the coping strategies they used throughout their sport injury experience. This scale consists of 14 subscales and 28 items (2 items for each subscale), which are rated from 1 (I did not do this at all) to 4 (I did this a lot). However, in line with the second hypothesis, only problem- and emotion-focused coping scales were used in this study (cf. Carver, 1997). Cronbach's alpha coefficients of .70 for instrumental support, .61 for venting, .71 for emotional support, .68 for positive reframing, .72 for planning, and .60 for acceptance were found in this study. Active coping was removed from the analysis as it showed a low Cronbach's alpha (.34). Research has suggested that measures with only a few items per sub-scale with a Cronbach's alpha value of .50 or above should be accepted (Carver, 1997; Nunally, 1978).

Procedure

Potential participants were recruited by approaching a number of sporting Universities and sports clubs across the United Kingdom. Institutions were contacted by phone and email to discuss the nature of the study, and whether they would be willing to provide access to potential participants. It was explained that the participants needed to fit the

following criteria: (a) experienced an injury through sport (i.e., injuries sustained in training or competition) rather than outside of sport (e.g., everyday accidents). This criterion helped to define and delimit the nature of our sample, especially considering our interest in perceived SRG following 'sport' injury; (b) been out of training and/or competition for a minimum of four weeks due to injury to ensure athletes incurred a serious injury. This criterion was introduced so that all the participants had the potential to experience growth (cf. Joseph & Linley, 2006). Minor scrapes and bruises that may require certain modifications (e.g., strapping or protective garments) for training and competition purposes were not classified as injuries in this study; and (c) returned to sport in the previous two-years (i.e., 24 months). This criterion was introduced to minimize recall biases (cf. Ptacek, Smith, Espe, & Rafferty, 1994; Smith, Leffingwell, & Ptacek, 1999).

All Universities and sports clubs who were contacted agreed to take part in the study. A suitable time and place to administer the questionnaires was discussed. Those who agreed to participate and met the selection criteria provided written informed consent in line with the University's Ethics Committee; participation was entirely voluntary (i.e., participants were not compensated in anyway). Participants filled out a demographic sheet which included information about when they returned to training and/or competition, time loss whilst injured, and the type and location of their injury. The DRS, SRGS, and Brief COPE were completed which included standardized instructions based upon the recommendations of Bartone et al. (1989), Park et al. (1996), and Carver et al. (1989). All questionnaires were counterbalanced (i.e., ordered randomly).

Data Analysis

Data were analyzed using SPSS 19.0 and involved four stages. First, the data were entered and then screened to check for accuracy and statistical assumptions. Second, demographic variables were analyzed. Specifically, Pearson product-moment correlations

were used to establish if there was a relationship between certain demographic variables (i.e., age, time loss, time since returning back to sport) and perceived SRG. Three independent-samples t-tests and a one-way ANOVA were conducted to examine the differences between sex, sport type (i.e., team vs. individual), injury type (i.e., upper vs. lower body injuries, and skeletal injuries vs. muscular injuries) and competition level (i.e., recreational, club, county, regional, national, and international) respectively. Third, Pearson product-moment correlations were used to identify the relationship between hardiness and its subcomponents on perceived growth (i.e., Hypothesis 1). Finally, Preacher and Hayes's (2008) bootstrapping procedure was used to examine if coping mediated the relationship between hardiness and perceived SRG (i.e., Hypothesis 2). Bootstrapping is a non-parametric procedure in which samples are taken multiple times from an existing dataset to create an empirical approximation of the sampling distribution. Confidence intervals are then generated based on this sampling distribution to test the meditational models. If the computed confidence intervals do not include 0, this indicates that the variable is a significant mediator in the proposed model (for a detailed discussion, see Preacher & Hayes, 2008). Bootstrapping is a particularly useful technique when testing models with multiple mediators as it allows for the assessment of the direction and magnitude of various mediation effects to be assessed independently. In particular, it reveals the unique effect of a given mediator when controlling for other possible mediators, while also testing for the combined effect of these mediators on a particular relationship. Multiple mediation analysis in this study was performed using Preacher and Hayes's (2008) MEDIATE macro; 95% confidence intervals were employed and 5,000 bootstrapping resamples were run.

Results

Means and Standard Deviations

The means, standard deviations, and correlations for the study's variables are presented in Table 1.

Table 1. Means, standard deviations and correlations amongst study variables

Study variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Growth	43.48	21.95	-											
2. Hardiness	55.94	12.86	.36**	-										
3. Commmitment	17.97	5.61	.33**	.90**	-									
4. Challenge	22.28	4.62	.30**	.75**	.47*	-								
5. Control	17.90	5.04	.27**	.89**	.74**	.50**	-							
6. Active coping	5.21	1.10	.01	.13	.12	.13	.11	-						
7. Instrumental support	5.09	1.70	.16*	-.04	-.05	-.10	-.03	.21**	-					
8. Emotional support	4.30	1.61	.36**	.23**	.22**	.13	.29**	.01	.44**	-				
9. Venting	4.70	1.00	-.03	.13	.11	.11	.12	.12	.15*	.09	-			
10. Positive reframing	4.45	1.61	.40**	.17*	.20**	.07	.10*	.11	.15*	.23**	.01	-		
11. Planning	5.22	1.61	.22**	.11	.12	.11	.10	.38**	.40**	.22**	.16*	.35**	-	
12. Acceptance	5.81	1.58	.12	-.02	.06	-.03	-.09	.15*	.20**	.17*	.12	.27**	.26**	-

Note. $*p < .05$; $**p < .01$

The mean score for hardiness (M = 55.94; SD = 12.86) was generally lower compared to previous findings in other contexts (e.g., McCalister, Dolber, Webster, Mallon, & Steinhardt, 2006; Steinhardt, Dolber, Gottlieb, & McCalister, 2003). The mean perceived SRG score in this study (M = 43.48; SD = 21.95) was also found to be lower compared to Park et al.'s (1996) study (M = 52.87; SD = 21.40). A potential reason for this difference is the stressors being examined. For example, Park et al. explored perceived SRG following events such as the death of a significant other, which would typically be considered to be more stressful than sports-related injuries (cf. Holmes & Rahe, 1967). Indeed, Joseph and Linley (2005) suggested that the greater the severity of the event, the more likely an individual is to

perceive growth. In terms of coping, the strategies assessed were reportedly used a moderate amount. This finding is consistent with previous research that has observed injured athletes to report using both problem-and emotion-focused coping strategies throughout their recovery (e.g., Gould, Udry, Bridges, & Beck, 1997; Wadey et al., 2011).

Demographic Analyses

Two-hundred and six participants completed data entry for all study variables. Only four participants were removed from the data analysis because of incomplete data. Before proceeding to the main analysis, the relationships and differences between the demographic variables and dependent variable were assessed. Findings revealed no significant relationship between perceived SRG and age (r = -.292, p > .05) or time loss (r = .266, p > .05). A significant relationship was found for time since returning back to sport (r = .298, p <. 05), identifying that those athletes who had returned to sport for a longer period of time experienced more growth. No significant differences were found for sex (t [204] = -.402, p > .05) or competitive level (F [7, 198] = 1.79, p >.05). Differences between type of injury (i.e., lower limb injuries vs. upper limbs injuries, and skeletal injuries vs. muscular injuries) and perceived SRG were explored. No significant difference was found between skeletal and muscular injuries (t [203] = .628, p > .05); however, a significant difference was found between lower limb injuries and upper limb injuries (t [81.9] = -3.55, p < .05). Findings revealed that those with lower limb injuries experienced more growth than those with upper limb injuries. Additionally, there was a significant difference for team and individual sports (t [120] = 2.08, p < .05). This finding suggests that those who participated in team sports experienced more perceived SRG than those in individual sports, which is perhaps consistent with Joseph and Linley (2006) who suggest the need for a supportive environment to promote growth. All significant findings (i.e., sport type, injury type and time since returning back) were controlled for them in the main analyses.

Main Analysis

Coefficients reveal hardiness (r = .36, p < .05), commitment (r = .33, p < .05), control (r = .27, p < .05), and challenge (r = .30, p < .05) had a significant positive relationship with perceived SRG. These findings suggest that those higher in hardiness are more likely to experience growth following sport injury. Follow-up multiple mediator models (Figures 1-4) indicate that coping mediated the relationship between hardiness and perceived SRG.

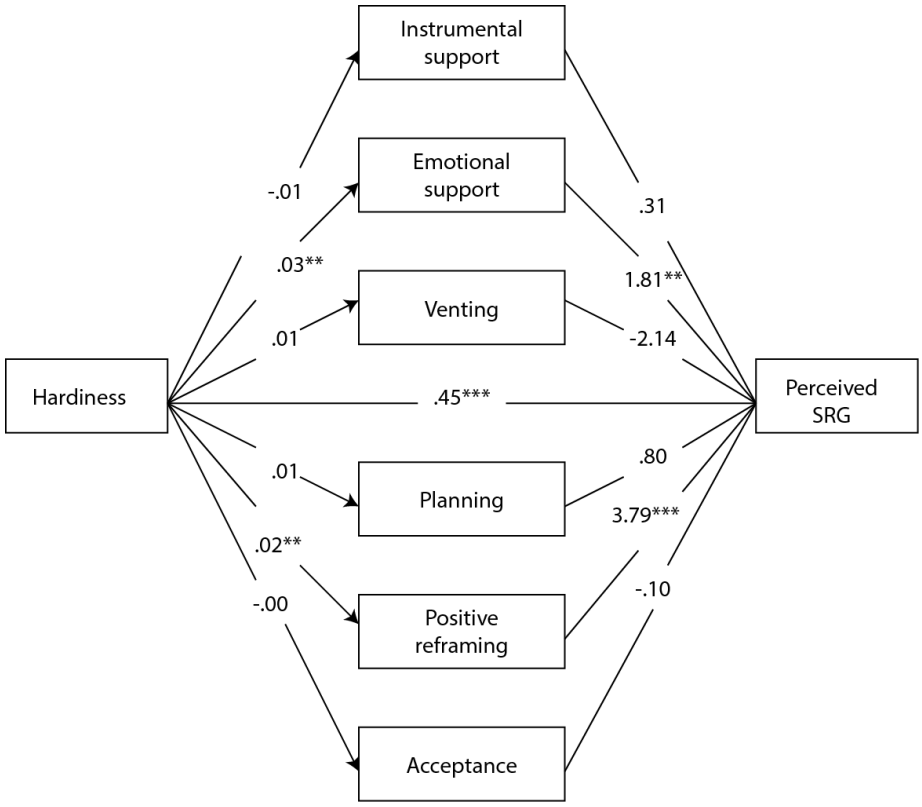

Figure 4. Coefficients representing effects of hardiness on coping and perceived stress-related growth *p < .5, ** p < .01, ***p < .001

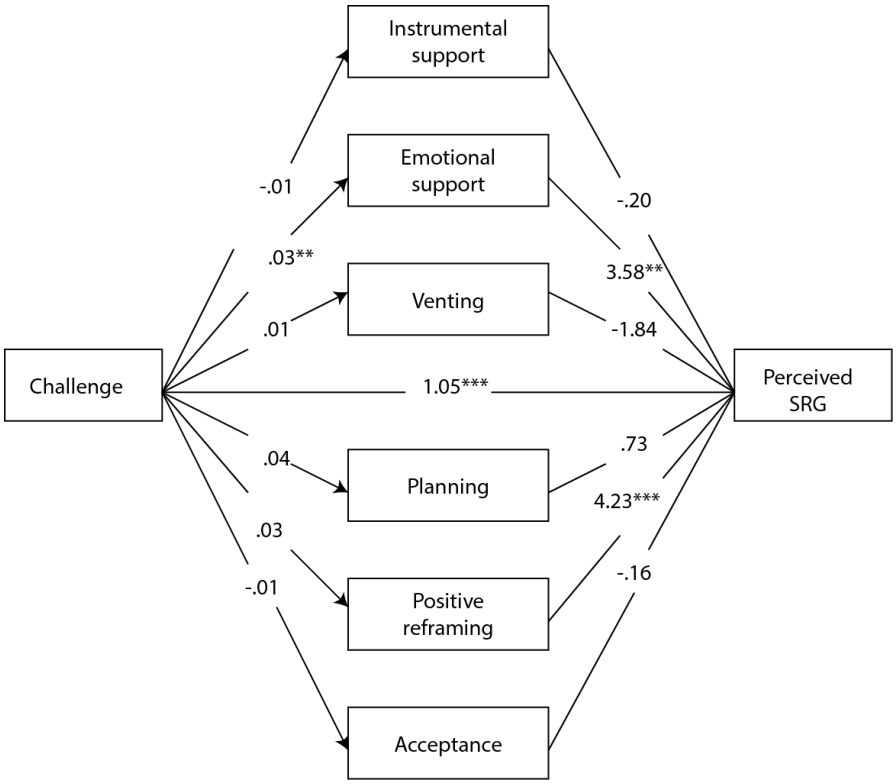

Figure 5. Coefficients representing effects of challenge on coping and perceived stress-related growth *p < .05, **p <.01; ***p <.001

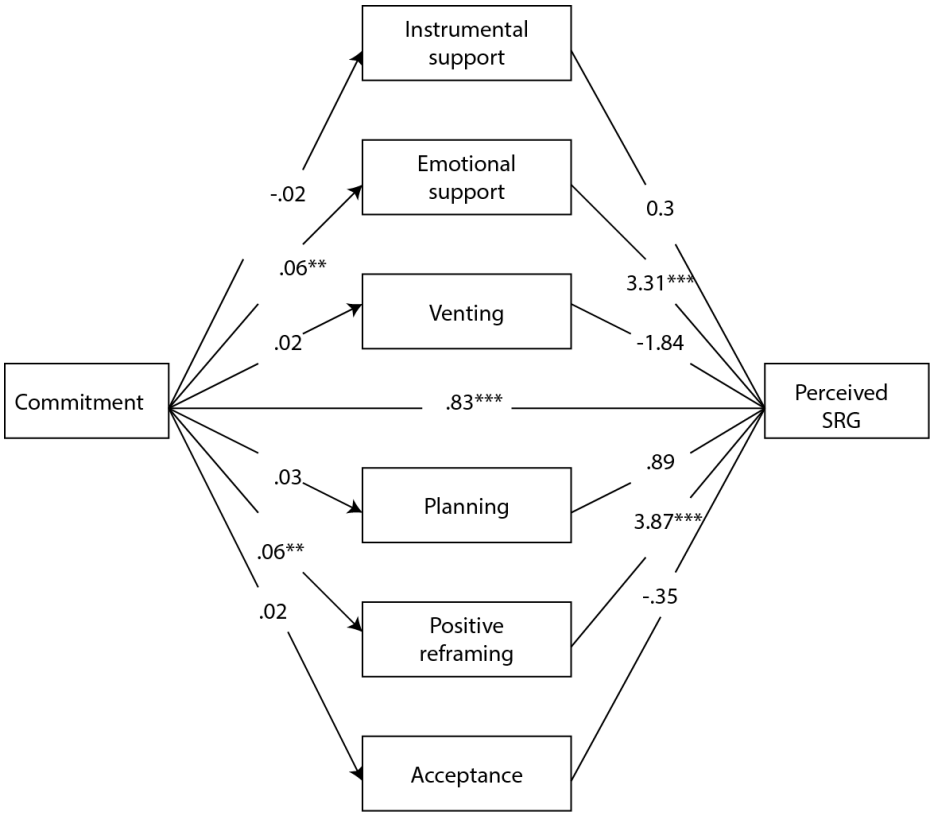

Figure 6. Coefficients representing effects of commitment on coping and perceived stress-related growth *p < .05, **p <.01; ***p <.001

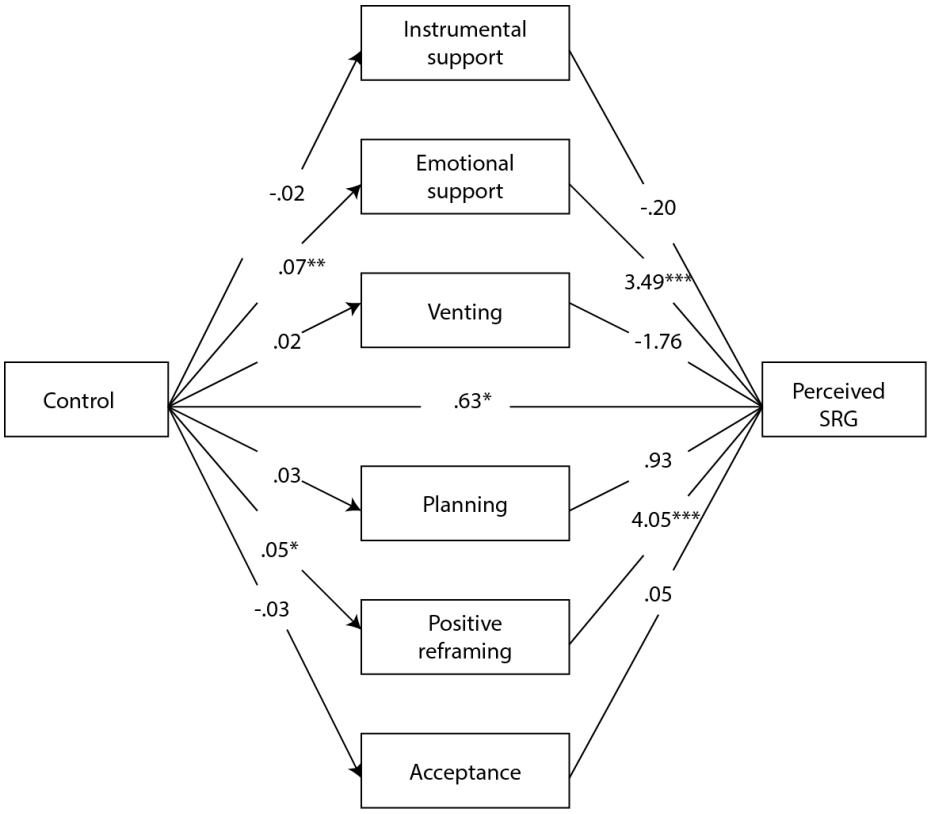

Figure 7. Coefficients representing effects of control on coping and perceived stress-related growth *p < .05, **p <.01; ***p <.001

The multiple mediator model was found to be significant, F (8,197) = 11.60, p <.001, and accounted for 32% of the variance (Adj. R^2 = .29). Controlling for significant demographic variables, findings indicated significant confidence intervals [CI] for emotional support and positive reframing mediating the relationship between hardiness (CI = .03, .18; .03, .18), control (CI = .11, .50; .04, .45), and commitment (CI = .08, .42; .09, .44) and perceived SRG. Although emotional support was found to mediate the relationship between challenge and perceived SRG (CI = .01, .39), positive reframing was found to be non-significant (-.07, .36). All other coping strategies (i.e., instrumental support, venting, planning and acceptance) were found to be non-significant.

Discussion

The purpose of this study was to examine the relationship between hardiness, coping and perceived SRG following sport injury. The results support the first hypothesis, finding a

significant positive relationship between hardiness and perceived SRG. This finding supports a key element of the conceptualization of hardiness (i.e., using adversity to one's advantage). Indeed, Maddi (2006) purported, "Hardiness is a combination of attitudes that provide the courage and motivation to do the hard, strategic work of turning stressful circumstances from potential disasters into growth opportunities" (p. 160). This result also supports Wiese-Bjornstal et al.'s (1998) integrated model, which suggests that personal variables can affect recovery outcomes (e.g., perceived SRG). However, although this model has the potential to provide a comprehensive understanding of when and for whom an injury will lead to perceived SRG, it fails to explain how or why this occurs. Indeed, the integrated model is not a theory, and therefore cannot explain the mechanisms by which some athletes high and low in certain dispositions such as hardiness perceive SRG and others do not. With the absence of a context-specific theory to explain the underlying processes that lead to perceived SRG, this study set out to explore the mediators of this relationship based upon hardiness research.

The second hypothesis was only partially supported, with the findings revealing that certain emotion-focused coping strategies (i.e., positive reframing and emotional support) and not problem-focused coping strategies (e.g., instrumental support and planning) mediated the relationship between hardiness and perceived SRG. This finding is in contrast with the conceptualization of hardiness, which suggests that problem- and emotion-focused coping transform a potentially debilitating situation into an opportunity for growth (Maddi, 2002). However, a potential explanation for this finding is that only one criterion variable was assessed in this study. For example, it might be that problem-focused coping strategies help individuals high in hardiness to 'resolve' controllable stressful demands, whereas emotion-focused coping strategies help them to 'transform' them into opportunities for growth and development.

One theory that explains how emotion-focused coping strategies can facilitate perceived SRG is the organismic valuing theory (OVT; Joseph and Linley, 2006). This theory proposes that encountering a stressful event can shatter a person's assumptive world. When this shattering effect occurs, the theory suggests that there is a need to integrate the new stress-related information (i.e., completion tendency). The person then goes through a series of oscillating phases of intrusion and avoidance as this new information is processed in one of two ways. Either this information is 'assimilated' within existing models of the world, or existing models of the world 'accommodate' this information in a positive or negative direction. The theory holds that individuals have an innate tendency to modify existing models of the world to positively accommodate new stress-related information (i.e., organismic valuing process). However, the organismic valuing process is challenging and requires a supportive social environment that facilitates satisfaction of the basic human needs of autonomy, competence, and relatedness. If the environment is not supportive of these needs, the OVT process will be thwarted and the information will be accommodated in a negative direction. Overall, the theory posits three outcomes that result from the way the information is processed: (a) assimilation, leading to a pre-stressor baseline; (b) negative accommodation, leading to distress; and (c) positive accommodated, leading to perceived SRG. Relating the OVT back to the present study, it is clear that the theory places a lot of significance of the way individuals' regulate the oscillating phases of intrusion and avoidance and mobilize the resources available to them. It may be that the athletes higher in hardiness in this study positively reframed their injury from mobilizing their support network, which in turn lowered distressing affective responses and enabled them to positive accommodation the stress-related information. Future research should further explore the applicability of the OVT in the context of sport injury.

In terms of practical application, the findings emphasize that practitioners who work with injured athletes may not only have an important role in preventing and/or repairing the negative consequences of injury, but also in terms of enabling them to experience perceived growth. Furthermore, practitioners should be aware that certain athletes are less likely to experience perceived SRG than others and therefore may require greater assistance to meet this outcome. Although it is too early to be certain of how best to facilitate perceived growth, the present findings would suggest practitioners need to challenge injured athletes to (re)appraise the significance of their injury in more adaptive ways, raise their awareness of their social support networks, and encourage them to mobilize their support. They should also work with athletes' social support networks to provide them with the skills and strategies to create an ideal environment for injured athletes to disclose their emotions to enable them to positively reframe their injury and optimize the likelihood of experiencing growth. Indeed, researchers have started to observe the efficacy and effectiveness of self-disclosure in promoting perceived growth following adversity in other contexts (Hudson & Day, 2012; Stanton & Danoff-Burg, 2002; Ullrich & Lutgendorf, 2002). For example, Hudson and Day (2012) explored written emotional disclosure with sixteen athletes who had encountered a stressor. Research findings identified that through written emotional disclosure, the athletes were able to reappraise their stressor, which then lead to a number of perceived positive outcomes (e.g., increased passion or motivation for their sport).

As with all research, this study had a number of strengths and limitations. The main strength was that it was the first study to explore perceived SRG in a sport injury context using a quantitative design, which provides a more generalizable set of findings than previous qualitative findings. Another strength of this study is that it has a large sample size, and composition with regard to the timing and severity of injury. Some previous studies have reported including minor injuries (i.e., one-day away from training or competition) and those

that date back over 10 years to increase their sample size; however, these have obvious limitations (e.g., memory recall). Finally, the current study also observed not only whom is more likely to experience growth (i.e., those higher in hardiness) but also how (i.e., using emotional support and positive reframing). These findings, therefore, have important theoretical and applied implications. From a theoretical perspective, these findings have extended Wiese-Bjornstal et al.'s integrated model (1998) and identified the potential application of Joseph and Linley's (2005) OVT in the context of sport injury. In terms of limitations of this study, shared method variance is one due to both the predictor and criterion variables being assessed solely through self-report. When assessing psychological variables and rehabilitation outcomes it is desirable to use additional measures to validate athletes' self-report (e.g., informant report, biological indices, and behavioral markers). Another limitation of this study is its cross-sectional design. Although such designs are helpful in identifying potential causal associations, experimental designs are needed to provide causal associations. Prospective, longitudinal pre-to-post injury studies would also be more desirable than cross-sectional designs in order to better understand the relationship between hardiness and growth. A final limitation to this study is that it lacks depth in terms of the coping strategies used and the perceived growth experienced by athletes both high and low in hardiness.

There are several avenues for future research. First, future researchers should explore in greater depth the terminology used to describe positive life change in the context of sport injury (e.g., post-traumatic growth, stress-related growth) and how they are distinguished (e.g., trauma vs. stress) and operationalized. Future researchers should also aim to further examine the relationship between hardiness and growth, using prospective and experimental methodological designs. These research designs will determine whether hardiness is truly a predictor of growth and not, for example, an outcome of the recovery process. Following this,

researchers could attempt to enhance the interpretability and meaningfulness of the present findings. For example, in terms of emotional support, it would be interesting to explore how those athletes high in hardiness use this coping strategy: Who do they disclose their emotions to? What was said? When and where did the exchange(s) occur? How did it lead to perceived growth? Answers to these questions will have important insights in the structure, timing and content of interventions. To derive these insights, future researchers should employ methodologies (e.g., interpretative phenomenological analysis or narrative analysis) and appropriate methods (e.g., diaries or interviews) that enable injured athletes to tell their stories in their own words. As well as exploring adaptive strategies used by athletes high in hardiness, future researchers should also consider their counterparts (i.e., athletes low in hardiness), thereby identifying what not to do. By examining adaptive and maladaptive strategies, these will help to provide a more complete, balanced understanding for scholars and practitioners. Finally, it would also be of interest to explore why does perceived growth matter? What are its consequences? How does this concept affect subjective well-being and sporting performance? Does making an injured athlete more physical and mentally stronger than prior to his or her injury make them less prone to reinjury? And by making them less prone to injury does this have economic implications for the health care system? Carver (1998) reported:

> Some individuals are even stronger after their traumatic event than before. These people cost the [health] care even less, by being less prone to relapse, maybe even less vulnerable to new adversities. If we can understand why some people [experience growth], and if we can teach the skill to others, the benefits to the nation's health care system could potentially be enormous (p. 26).

Chapter 3: Examining Hardiness, Coping and Stress-Related Growth following Sport Injury (Study 2)

Abstract

This study aimed to explain how injured athletes high in hardiness promote stress-related growth (SRG) and why athletes low in hardiness are less likely to derive such benefits. Twenty participants were theoretically sampled into high (*N*=10) and low (*N*=10) hardiness groups. Semi-structured interviews were used for data collection. Findings revealed that athletes high in hardiness experienced SRG through four mechanisms: (a) emotional outlet, (b) positive reframing, (c) positive affect, and (d) investing in resources. In contrast, athletes low in hardiness had no emotional outlet, which led to sub-optimal outcomes. These findings have important implications for practitioners working with injured athletes.

Introduction

One concept that is gaining increased attention from researchers within the discipline of sport and exercise psychology is growth following a stressful or traumatic experience. Growth could be explained as positive changes which result from a demanding event that has propelled an individual to a higher level of functioning than that which existed prior to the event (Carver, 1998). Whilst stressful stimuli can lead to sub-optimal outcomes (e.g., burnout, under-performance), a number of researchers from other disciplines have suggested that it may also have positive consequences (Calhoun & Tedeschi, 1999; Joseph & Linley, 2008). And it is the latter point that has intrigued sport and exercise psychology researchers more recently. Indeed, Hefferon and Sabiston and their colleagues have examined how exercise can promote growth among cancer survivors (e.g., Hefferon, Grealy, & Mutrie, 2008; Sabiston, McDonough, & Crocker, 2007), whereas Crawford and Smith and their colleagues have identified growth experiences in athletes with spinal cord injury (e.g., Crawford, Gayman, & Tracey, 2014; Smith & Sparkes, 2005). Other researchers have taken an alternative approach by exploring growth in elite and non-elite athletes across a diverse range of stressors (e.g., Galli & Reel, 2012; Howells & Fletcher, 2015; Tamminen, Holt, & Neely, 2013). The demands included poor performances, car accidents, family dysfunction, media scrutiny, and developmental stressors (e.g., speech impediment, ADHD). Collectively, these preliminary studies have shown that athletes from different competitive standards can experience positive changes following a stressful or traumatic event, and that exercise can be used as a vehicle to promote growth in individuals with certain conditions.

Another line of research of greater relevance to this study is the experience of growth following an acute sport-related injury (e.g., Udry, Gould, Bridges, & Beck, 1997; Wadey, Evans, Evans, & Mitchell, 2011). Although somewhat related to the aforementioned research, it is important to note that this line of research differs in a number of ways. Indeed, an acute

sport injury is a unique stressor compared to other demands or conditions such a car accident or terminal illness. It is unique in that injuries are frequent occurrences and considered part-and-parcel of sport (Wadey & Evans, 2011). Unlike other more unforeseen stressors, every time an athlete trains or competes they put themselves at risk of getting injured. Having an acute sport-related injury also means being physically incapacitated, which is dissimilar to other sport-specific stressors (e.g., poor performance, media scrutiny). Being incapacitated can lead to a greater sense of isolation, which can pose a significant threat to athletes' identity and coping resources (e.g., Bianco, Malo, & Orlick, 1999; Evans, Wadey, Hanton, & Mitchell, 2012). In addition, the characteristics of competitive athletes are suggested to differ from their non-athletic counterparts. Competitive athletes are suggested to laud physical prowess, emphasize positivity, admire risk-taking behavior, and tolerate pain (Howe, 2004; Mankad, Gordon, & Wallman, 2009a). Taken together, much can be learned from researchers exploring growth across different stressors or conditions; however, it is important to be cognizant of the unique subtleties and nuances between them. Injured athletes represent a group with unique stress experiences that are ideally viewed contextually through a lens that is sensitive to the recovery process and the unique characteristics of the athletes themselves.

Before reviewing the research that has explored growth following an acute sport-related injury, it is important to recognize an issue surrounding the terminology used to refer to growth. That is, researchers use different terms when referring to growth and some use terms interchangeably. For example, Wadey and colleagues have used the terms perceived benefits (Wadey et al., 2011), thriving (Wadey & Hanton, 2014), and stress-related growth (Wadey, Clark, Podlog, & McCullough, 2013). Other researchers favor the term post-traumatic growth (Hefferon et al., 2008; Sabiston et al., 2007). To develop a more unified body of literature, it is important that researchers grapple with the subtle differences between these terms and employ an appropriate term for their research question. Park (2009)

recommended that researchers should consider at least two factors: (a) commonality of occurrence of the stressor under examination. This information will help to distinguish events or conditions that are considered traumatic from those that are stressful. It is advised that the term post-traumatic growth is reserved for those individuals who have suffered traumatic experiences, whereas the term stress-related growth would reflect more common stressful events; and (b) whether they are interested in examining perceived or actual growth. Some researchers are interested in measurable changes, whereas others are concerned with subjective experiences (cf. Tennen & Affleck, 2002). Indeed, "it may be more important to know whether people believe that they have grown regardless of whether there is any objective measure of change" (Park & Helgeson, 2006, p. 794). With regard to this study, the term perceived stress-related growth (SRG) is used for the following reasons: acute injuries are common occurrences in sport, and the researcher was interested in whether athletes believe they have changed in positive ways as a result of their injury experience.

A number of studies have explored SRG following an acute sport-related injury. One of the first studies was by Udry et al. (1997) who interviewed 21 injured athletes from the U.S. Ski Team. Twenty of the 21 skiers perceived they had experienced SRG across three dimensions: personal growth, psychologically-based performance enhancements, and physical/technical development benefits. With regard to the latter dimension, the skiers reported that they not only became physically stronger, but they learned more about their body, its workings, and how it responds to training. Interestingly, this finding is not reported by researchers examining growth following other stressful or traumatic events (cf. Calhoun & Tedeschi, 1999), which demonstrates how the recovery process from injury may generate unique growth experiences. Since Udry et al.'s (1997) study, a number of researchers have gone onto directly examined SRG following injury (e.g., Smith & Sparkes, 2005; Tracey, 2011; Wadey et al., 2011, 2013) or reported it as a serendipitous finding (e.g., Bianco et al.,

1999; Ford & Gordon, 1999; Hurley, Moran, & Guerin, 2007). Collectively, this body of research has shown that male and female athletes, from team and individual sports, across various levels of competition, and with different types of injuries believe they have experienced positive changes resulting from their injury experiences. Another interesting finding to emerge is that while many injured athletes' experience SRG, some do not. Indeed, Udry et al. (1997) reported, "One skier was unable to identify any benefits associated with being injured" (p. 244). Consequently, they recommended that future researchers should identify who is more likely to experience SRG and how they are able to do so.

Aligned with Udry et al.'s (1997) recommendations, Study 1 examined the relationship between the personality trait of hardiness and SRG. The rationale for examining hardiness was that it is conceptualized to transform debilitating situations into an opportunity for personal growth and development (Kobasa, 1979). Being an exploratory study, Study 1 used a cross-sectional design, whereby 206 athletes who had recently return to sport following injury completed a measure of hardiness, coping, and SRG. As hypothesized, findings revealed a significant positive relationship between hardiness and SRG. Two coping strategies were also found to mediate this relationship: emotional support and positive reframing. It was suggested, therefore, that athletes higher in hardiness had higher SRG scores because they reported greater use of their social support for emotional reasons (e.g., moral support, sympathy or understanding) and were able to view their injury in positive terms. Although these findings offered important insights for practitioners working with injured athletes seeking to promote SRG, the quantitative nature of the research findings did not provide sufficient depth to inform professional practice. Findings from Study 1 suggested that future researchers use qualitative inquiry to develop a more elaborative understanding of the relationship between hardiness and SRG. The aim of this study was to explain in depth *how* injured athletes high in hardiness are able to promote SRG, and *why* their low hardiness

counterparts are unable to derive such positive changes. Findings from this study will not only extend Salim et al.'s findings, but also significantly contribute to sport psychology research examining SRG generally. Indeed, previous researchers have been more concerned with describing SRG rather than identifying the mechanisms leading to or barriers preventing SRG. Clearly, this study has the potential to have important theoretical and applied implications.

Method

Philosophical Assumptions

This study is underpinned by critical realism and modified dualism/objectivism (Lincoln, Lynham, & Guba, 2011). These beliefs reflect a post-positivism paradigm, which recognizes that nature can never fully be understood and it can only approximated. Adopting this paradigm had a number of implications for this study, which included the choice of method (i.e., semi-structured interview that was literature driven and standard across participants), how the data were collected (i.e., 'one-shot' interviews), and the trustworthiness techniques used and how they are employed (e.g., using peer debriefing to reach consensual agreement upon identified themes and to control for the researchers' values in the research process).

Participant Selection

After gaining university ethical approval, a four step purposeful sampling strategy was used to recruit participants. First, participants were identified using theory-based sampling (Patton, 2002), which involved selecting participants based on their representation of an important theoretical construct (i.e., high and low in hardiness). This strategy involved reviewing the composite hardiness scores from the Dispositional Resilience Scale (DRS) of the participants from Study 1's original sample. Consistent with Khoshaba and Maddi's (1999) qualitative procedure, those athletes who were above the 75th percentile (i.e., 63 or

above for this study) were identified as high in hardiness, and those who were below the 25th percentile (i.e., 47 or below for this study) were considered to be low in hardiness. This process resulted in 43 participants; 23 high and 20 low in hardiness. Second, maximum variation sampling was used, which involved selecting a sample with a range of characteristics to help document unique and diverse insights into the research question (Patton, 2002). The characteristics for this study included sex, sport type, competitive level, and injury severity. To facilitate meaningful group comparison, however, participants were matched across these characteristics for the two hardiness groups, resulting in each group consisting of males and females, team and individual sports, different standards of competition, and injuries that varied in their severity. Third, any participants who recovered from their injuries and returned to competitive sport in excess of one year were excluded (N = 15). This criterion was adopted to minimize the effect of inaccurate recall. Fourth, the remaining participants (N = 28) were then asked to complete the DRS again to ensure their scores aligned with those found in Salim et al.'s study. Athletes high in hardiness once again scored above the 75th percentile, whereas those low in hardiness remained below the 25th percentile. The athletes were subsequently informed of the purpose of the study and invited to participate. Eight athletes declined due to various other commitments. The remaining 20 athletes all agreed to take part and provided written consent.

Participants

From the 20 athletes who served as participants, six were female and 14 were male, with a mean age of 23.7 years (*SD* = 6.4). They represented a number of individual and team sports (i.e., martial arts, football, running, tennis, golf, swimming, running, rugby, and basketball) and ranged from recreational to national levels of competition. All participants had fully recovered from their injuries and returned to full training and/or competition. Participant information is provided in Table 2.

Table 2. Participant information

. Hardiness	Gender	Age	Sport	Competitive level	Injury	Severity (days)
Low	Male	19	Rugby	National	Tendinitis in knee	35
Low	Female	21	Football	Club	Sprained knee	60
Low	Female	21	Football	Club	Pulled muscle at hip flexor	70
Low	Male	38	Tennis	Regional	Muscle tear in gastrocnemius	120
Low	Male	29	Football	Recreational	Pulled anterior tabofibular ligament	243
Low	Male	19	Athletics	Regional	Fractured knee	182
Low	Female	37	Running	Club	Osteoarthritis in hip	121
Low	Male	28	Golf	Club	Torn cartilage in knee	60
Low	Male	19	Football	Club	Strained hip flexor	35
Low	Male	23	Football	Club	Sprained ankle	60
High	Male	35	Running	Recreational	Torn tendon in pelvis	35
High	Female	20	Football	Club	Dislocated hip	91
High	Male	29	Muay Thai	Club	Strained lower back	70
High	Male	23	Football	Regional	Muscle tear in quadriceps	140
High	Male	20	Swimming	National	Scoliosis in back	98
High	Male	18	Basketball	Club	Strained groin	60
High	Female	18	Football	Regional	Partial tear in knee	121
High	Female	21	Martial arts	County	Fractured foot	152
High	Female	20	Running	Club	Shin splints	105
High	Male	20	Football	Club	Broken clavicle	70

Semi-Structured Interview Guide

Based on Study 1's findings, a semi-structured interview guide was developed to gain an understanding of the participants' injury experiences (see appendix 6 & 7). Although semi-structured interview guides are reported to be over relied on in sport psychology research, the rationale for using this method of data collection was because this study had specific research aims and it has been shown to be useful in previous research when exploring events that follow a stage-by-stage temporal sequence (Culver, Gilbert, & Sparkes, 2012). The guide was developed from the results generated from Study 1's findings, guidelines on qualitative interviewing (e.g., Patton, 2002), and previously employed interview guides (e.g., Podlog & Eklund, 2006; Tracey, 2003; Wadey et al., 2012). Once developed, the guide was piloted on two previously injured male athletes, who participated in football or rugby. Based on their feedback and the researcher's personal reflections with her supervisor, a few changes were made to make the questions more user-friendly. Certain questions were also excluded as they were found to be unproductive for the aims of this study. The final version of the interview guide contained three sections. In section one, the interviewer explained the objective of the study, after which the interviewee was encouraged to discuss their sporting background. Section two focused on the aims of the study, which for those high in hardiness it was to explain how they promoted SRG through the use of emotional support and positive reframing, whereas for those low in hardiness it was to explain why they were less likely to use the strategies that derive such benefits. This section also provided sufficient flexibility to enable the participants to contextualize their responses to these questions and allow for other ideas to be introduced that not only refine but also extend Study 1's findings. The final section concluded the interview and invited the participant to add to anything previously discussed. Neutral non-directional probes were used

throughout the entire interview process to help with detail, elaboration and clarification (e.g., Can you give me an example? What do you mean by this?).

Sixteen interviews were conducted face-to-face, in either a room that was provided by the University, or a place of best convenience to both the participant and the researcher (e.g., a local coffee shop). Four interviews were conducted over the telephone in a room provided by the University due to convenience and time constraints of the participants. Each interview lasted between 45 minutes and 130 minutes (M = 60.2; SD = 20.2) and was recorded in its entirety. All interviews were transcribed verbatim.

Data Analysis

Transcripts were analyzed and displayed using composite sequence analysis (CSA; Miles & Huberman, 1994). This form of qualitative analysis was developed to extract plots, stories and scenarios that a number of cases share as meaningful time-ordered sequences. Considering the aims to this study were to explain how or why injured athletes high or low in hardiness are able or unable to foster growth (i.e., processes over time), the rationale for using CSA was because it accounts for time. Indeed, recovery from injury is viewed as a dynamic process, whereby responses are encouraged to be assessed in a temporal context (Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998). Data analysis involved five stages. First, all the transcripts were read and re-read by the researcher to familiarize herself with the content. Second, chains of variables (i.e., causal streams) in the form of raw quotations were identified from the transcripts. Third, within-case causal networks were developed to provide an illustration of the relationships between the variables (Miles & Huberman, 1994). Fourth, cross-case causal networks were developed using comparative analysis for those high or low in hardiness. Finally, cross-case causal networks formed two time-ordered composite sequence maps to illustrate the overall findings of the study (Figures 8 & 9).

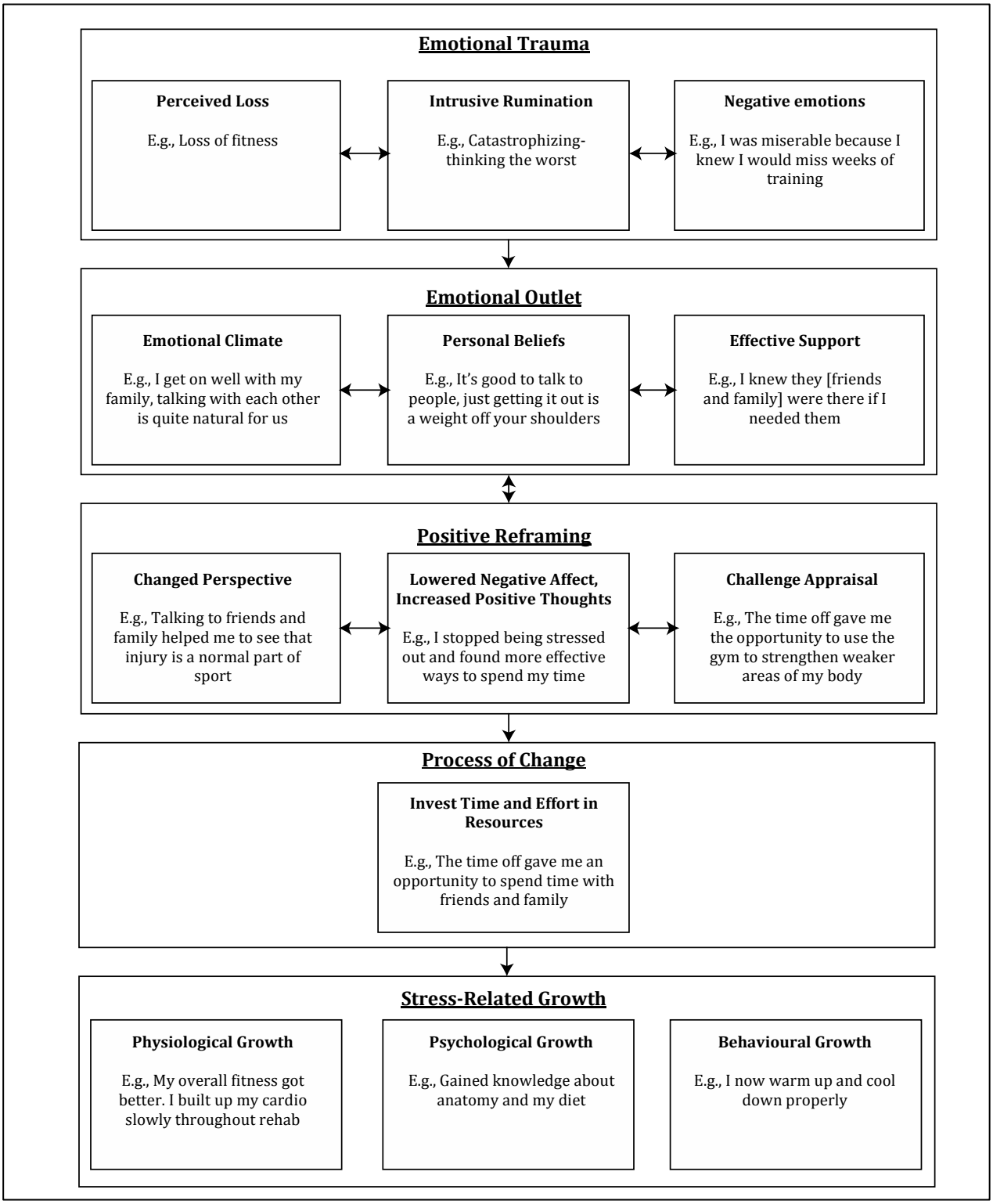

Figure 8. High in hardiness composite map

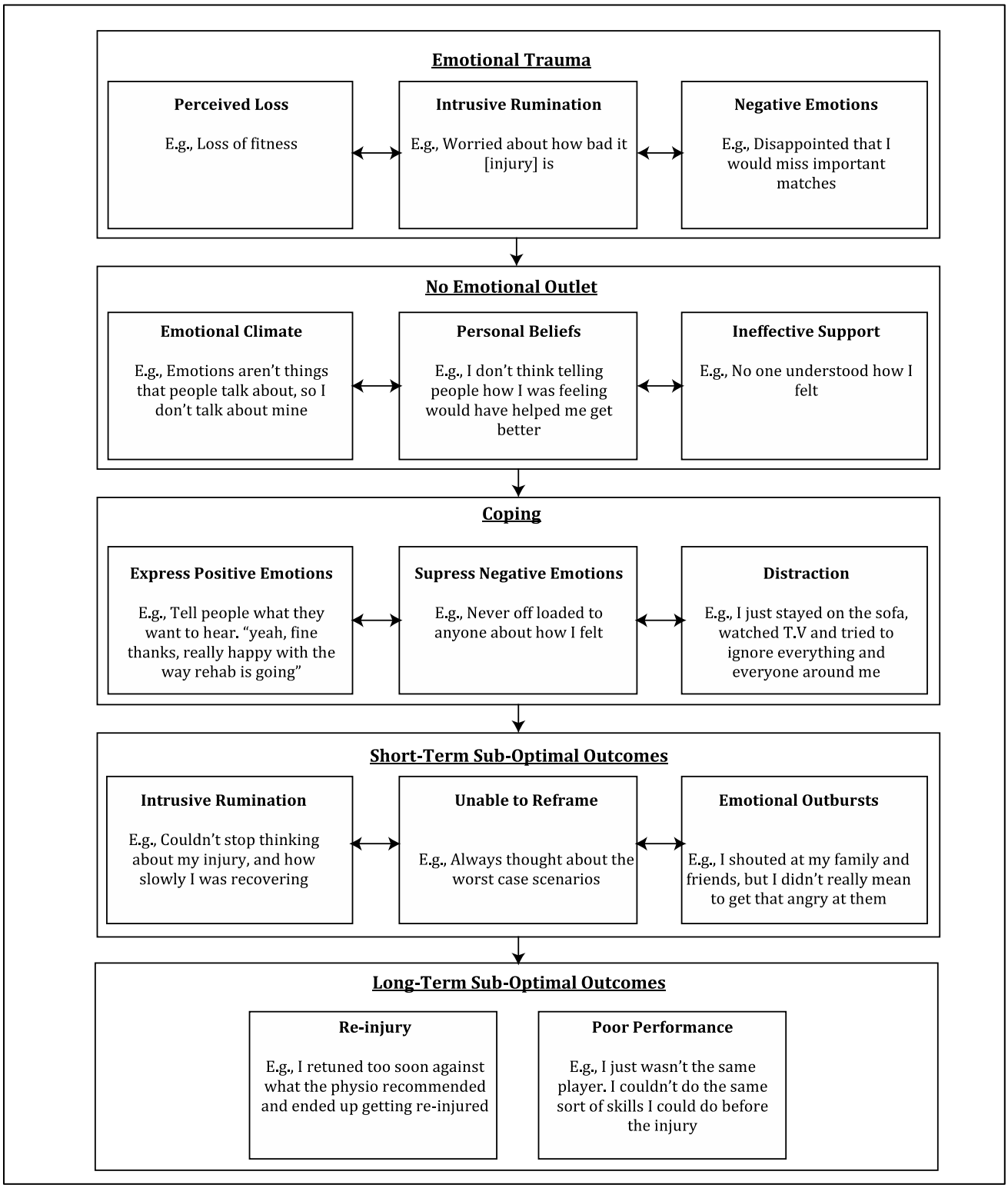

Figure 9. Low in hardiness composite map

Trustworthiness

Aligned with the philosophical orientation of this study, two techniques were selected and employed to bolster the rigor of the findings: member checking and peer-debriefing. These techniques were used over three phases. The initial phase followed data transcription, where the researcher sent the respective transcripts to the participants by email to verify the data and to provide any additional commentary. All the participants responded and verified that the transcripts reflected their experiences; no additional commentary was provided at this stage. The second phase occurred during data analysis and involved the researcher using her supervisor as a 'critical friend' (e.g., Faulkner & Sparkes, 1999). Specifically, this debriefing involved her supervisor questioning the researcher to ensure her personal experiences, attitudes, values, and/or beliefs were not biasing her interpretations of the findings, and that she had a thorough understanding of the participants' experiences. This process involved the researcher continually going back and forth between the transcripts and her supervisor. The resultant interpretations were continually discussed and reflected upon until consensus was achieved amongst both the researcher and her supervisor. Once all researchers were in agreement, the final phase involved each of the participants reviewing their results face-to-face with the researcher to verify that the interpretations were an accurate representation of their experiences and once again provided an opportunity for additional dialogue. All participants confirmed the researchers' interpretations and provided additional contextual findings surrounding the data.

Results

Four broad and sequential themes emerged from the interviews to explain how athletes high in hardiness promoted SRG, and why those low in hardiness are unable to derive such benefits. The themes are emotional trauma, emotional outlet, subsequent

responses, and resultant outcomes. To more meaningfully compare across the two groups, the following descriptive account integrates high and low hardiness responses.

Emotional Trauma

Athletes low and high in hardiness recalled that when they incurred their injury through sport, they experienced a number of intrusive thoughts and negative emotions, which were found to emanate from real and perceived losses. Although the athletes recalled that the typical process was perceived loss, which resulted in intrusive thoughts and subsequent negative emotions; they all highlighted that these three factors all mutually affected one another in a dynamic and reciprocal fashion (e.g., negative emotions led them to dwell on their perceived loss, which in turn led them to ruminate about their injury). In terms of real and perceived losses, the athletes mentioned losses in fitness, money, opportunities (sporting and non-sporting), independence, career, and athletic identity. One athlete high in hardiness expressed, "Running makes me feel like I have a purpose, it is who I am. Without it I'm lost", whereas another athlete expressed, "I knew I would be off for a long period of time. I was in so much pain. I knew that I would lose my fitness. I was so frustrated; my pre-season training was a complete waste of time." These perceived losses led all the athletes to experience a number of negative emotions in the days and weeks following their injury, which were reported to engulf them. Specifically, the emotions reported were miserable, angry, frustrated, upset and disappointed. One athlete low in hardiness recalled:

> Sitting and doing nothing all day was so upsetting. It meant all I could do was think about it [injury], which made me more and more angry … I was angry at myself for getting injured and worried about how bad it was. I had just made my break through with a club and I thought that was it, my career was over.

The combined effect of the losses and unpleasant emotions led the participants to go down a negative spiral of intrusive rumination. The thoughts focused on reminiscing about

the event that led to the injury, concerns about how they would cope with the aftermath of their injury, and blaming oneself and/or others for the injury. Indeed, the participants explained that they would experience flashbacks or images of the incident that caused their injury, repeatedly ask themselves an ongoing set of questions (e.g., Why me? Why now?), and direct negative judgments towards themselves and/or others for being injured. One athlete high in hardiness commented:

> I just kept thinking about how it happened over and over again and I just couldn't understand it. I was so worried about how bad the injury was. I couldn't stop thinking, 'This is it, I will never swim again; everything I have ever worked for has come to an end. Life is so unfair, I don't deserve this. What am I meant to do now?'

Emotional Outlet

Although both groups of athletes experienced emotional trauma following their injury, they differed in how they responded to this trauma. Athletes high in hardiness recalled disclosing their thoughts and feelings to members of their support network, whereas those low in hardiness reported that they had no emotional outlet. When asked why they did or did not disclose, the participants' reasoning reflected three themes: emotional climate, personal beliefs, and support exchanges. For those participants high in hardiness, the emotional climate they operated in outside of sport (e.g., family unit, circle of friends) encouraged disclosure. One athlete expressed:

> I talk to my friends about pretty much anything, so injury wasn't much different. I live with other runners, so talking about how we are thinking or feeling is pretty normal. When I was feeling down about my injury, they were the first people I spoke to … I am also really close to my Mum, I always have been. She's a really good listener. She never makes me feel embarrassed or silly for the things I say. Talking to her about feeling unhappy about my injury was a great comfort.

In contrast, the athletes low in hardiness recalled that in their emotional climate, both inside (i.e., training, socializing with teammates) and outside of sport (i.e., home, socializing with friends), they felt they needed to keep up the visage of being strong. This visage was shown from demonstrating 'mental toughness' and they were coping well. The last thing the athletes reported that they wanted to demonstrate was any sign of weakness. One athlete recalled:

> When you are playing sport you never want to show that you are weak. You learn that part of being a good sportsman is having mental toughness. If I start talking about my emotions and showing signs of weakness then people will probably tackle me even harder. Talking is just not something I do. You aren't going to sit around with your friends in the changing room and just start talking about how you are feeling. You just have to get on with things. In all of the time I have been at the club, nobody has ever come up to talk to me about their emotions.

Based on previous personal experiences or from observing others expressing emotions in and outside of sport, the participants' mentioned that their emotional climate reinforced their personal beliefs about disclosure. Athletes high in hardiness believed that disclosure was beneficial, they expressed: "It's good to talk", "Better out than in", and "It's cathartic to talk". One athlete commented:

> I just feel that getting it [thoughts and feelings] out is a weight off your shoulders and is something less to worry about. When you are feeling down about being injured and you can't stop thinking about it, having someone to talk to just makes it less stressful. It's when you don't talk about things; that's when things build up inside and you get angrier or upset

The athletes low in hardiness reported contrasting beliefs. They believed that if they talked to others about their emotions, they would be negatively evaluated by them and it

would have consequences (e.g., team selection upon return to sport). Furthermore, some participants recalled that they believed that disclosing to others meant they would be a burden and that people have their own problems to deal with. One athlete expressed, "I just didn't want to burden others with my negative emotions … Everyone has their own things going on in life, which are more important than me. I'm sure they wouldn't want to sit and listen to me about a silly injury." Another belief the participants highlighted was, "Talking to people about feelings wouldn't have helped me to recover any quicker." Athletes low in hardiness were not concerned with their psychological recovery, and saw no relationship between their psychological and physical recovery.

The participants' emotional climate and personal beliefs was found to ultimately effect their support exchanges. Athletes high in hardiness reported that the support provided by their support members' matched their needs. The types of social support provided were listening support, emotional support, and emotional challenge. Specifically, it was recalled that the support members would firstly provide listening support by encouraging the participants to express how they were thinking and feeling. During these support exchanges, the participants expressed that emotions would start to surface and their support providers would comfort them by demonstrating that they care for them, either verbally or through their actions (e.g., holding hands, arm around the shoulder). Finally, the support providers would challenge their emotions indirectly by disclosing about their own personal stressors, or directly by normalizing the injury or comparing it to more stressful injuries. The following example provides an insight into emotional challenge support:

> Sometimes the pain would be really bad and I would question whether I would ever get better. I would think it's not improving; I may as well give up. My parents would then say things like, "It won't get better overnight" … They would also explain to me that there are a lot of people less fortunate than me, and I can't feel too sorry for

myself when there are other people who will never be able to walk again. I soon realized that worse things could happen in life than this injury.

In contrast, the support network of the athletes low in hardiness never asked them about how they felt; they were more concerned with their physical injury because they could see it and observe its impact (e.g., flinching, limping, and grimaces of pain). As a result, they would offer information support, despite not having the necessary expertise. Throughout the remainder of the participants' recovery, the support members remained unaware of their psychological needs:

> There were quite a few people around, friends and parents but they didn't really help. They just didn't understand … Nobody said anything supportive. They just made things worse because they had no idea or understanding of how much it [sport] means to me. How could they understand, they don't even play sport. They wouldn't know how it feels to miss a game.

Subsequent Responses

Having or not having an emotional outlet that met the needs of the participants was found to have an important influence on how they responded to and coped with the recovery process. For those athletes high in hardiness who had a supportive environment that aligned with their personal beliefs and psychological needs, they reported that their support exchanges had three subsequent responses: (a) positive reframing, (b) heightened positive affect, and (d) investing increased time and effort in resources. First, the participants reported their support exchanges reframed their perception of their injury by viewing it in a less stressful way and as a challenge to overcome. One athlete high in hardiness recalled, "When I was down, my dad would remind me situations which were worse. Like when I broke my leg, which made me see that although my injury seemed bad right now, it wasn't as bad as that." Their support network also challenged them to think how they could make the most out of the

situation by asking questions like: So what are you going to do now? How can you learn from this? What are you going to do with your free time?

From their support network enabling them to view their injury as a challenge to overcome, the participants recalled feeling more positive. Two athletes expressed, "I started to feel more optimistic, seeing what I could learn from this injury" and "I became more positive on what I could get out of this experience." Indeed, the athletes reported feeling gratitude towards their friends and family, more optimistic in making the most of their situation, and a great deal of interest in their injury and the recovery process. Another athlete commented, "I was down and upset, but I became more upbeat after chatting with my friend. I remember saying to my friend that I am going to do what I can to make myself better; I need to be positive and get back." These positive feelings then led them to identify and invest time and effort in their physical and social resources. With regard to the physical resources, the participants reported investing time and effort into the sports club's gymnasium to work on their non-injured muscle groups, as well as the learning resources available to them (e.g., library, internet at home) to better understand their injury, the recovery process, and effective training methods. One athlete recalled, "I become really interested in my injury. I couldn't do any sport with my injury, so I thought I would learn about it instead. I spent lots of time researching my injury and asking the physiotherapist questions." In terms of their social resources, the participants reported that they decided to invest their free time into their family, close circle of friends, and reflecting on themselves. One athlete recalled, "I did not have a very good relationship with my brother before my injury because we have just never really got on. But when I got injured I decided to spend more time together."

In contrast, the athletes low in hardiness expressed different resultant responses from their social support network not meeting their psychological needs. Three resultant responses reported were: (a) suppressing negative emotions, (b) expressing positive emotions, and (c)

emotional outbursts. With regard to emotional suppression, those low in hardiness recalled that they would 'bottle up' the negative emotions they were really feeling as a way to cope with the social norms in their sporting and nonsporting environments. However, although suppressing their negative emotions helped them to avoid being judged and/or a burden on others, the participants did not think it was an effective strategy. One athlete commented:

> I didn't talk to anybody. I bottled things up and it makes things worse. I never offloaded to anyone about how I felt. Not telling anyone actually made me feel worse because all my anger and frustration just built up and I became more and more miserable. The more I kept my emotions in, the angrier I got, and the more I got annoyed with everyone around me.

Due to the participants' ineffective attempts to manage their negative thoughts and feelings, many highlighted that they continued to have repeated episodes of intrusive rumination and experienced negative emotions throughout their recovery. These responses led to them being unable to reframe their injury. One athlete reported, "I felt worst [during rehabilitation] than I did when I got injured. I was filled with anger, disappointment; I couldn't see myself recovering or see any light at the end of the tunnel. It seemed to just go from bad to worse." These episodes occurred at sporadic times, but typically when they were by themselves (e.g., first thing in the morning, last thing at night). When they were with others in a sporting context however, they coped by expressing positive emotions (e.g., cheerful, happy, upbeat, interested) as they found it easier just to tell people what they wanted to hear. The following athlete mentioned his typical response to questions about his injury:

> I would say, "Yeah, I'm fine thanks, really happy with the way rehab is going. I'll be back soon." I kept telling everyone how excited I was about coming back. I'd also be

> really cheerful for everyone else. But, yeah, deep down, especially when I was on my own, I was pretty miserable.

As a consequence of suppressing negative emotions and expressing positive emotions, every now and then, the participants recalled that they would have an emotional outburst. They described these outbursts as their emotions 'boiling over', and things just getting too much for them, resulting in them verbally shouting towards members of their social network. To their frustration, the outbursts would often be directed towards those who they valued most (i.e., close friends, immediate family). One athlete mentioned:

> I would shout or get cross at people around me. I remember my mum trying to help me upstairs to the toilet one day, and I ended up shouting, "Just leave me alone! I can do it myself. Go away, I don't want you here." I didn't mean it like that, but I said it so aggressively, just because I was so frustrated.

Resultant Outcomes

The participants' subsequent responses were reported to lead to resultant outcomes. The outcomes recalled however, differed between the high and low hardiness groups. The athletes high in hardiness mentioned three resultant outcomes: (a) physiological growth, (b) psychological growth, and (c) behavioral growth. Although some of the areas of growth recalled within these themes were not related across the themes, many of them were related. For example, one aspect of physiological growth was improved strength and conditioning, which according to the participants led to psychological growth (i.e., confidence in one's physical prowess) and behavioral growth (i.e., improved sporting performance). Another example is that of psychological growth, where having a greater empathy for others was mentioned by the participants to lead to them help other injured athletes in need (i.e., behavioral growth).

With regard to physiological growth, the participants recalled that from investing time and effort in their physical environment during their recovery they were able to see improvements in their flexibility, conditioning, strength, and core stability; all of which, according to the participants, lead to decreased risk of future injury. One athlete mentioned:

> I definitely became physically stronger because of my injury and I have had less niggles since returning back. I used to get a sore back all of the time, but I worked on my weaker muscles while I was off … The physiotherapist gave me some excellent exercises to do whilst I couldn't use my knee. And the time I spent in the gym was so effective because I wouldn't have worked on those muscles if I didn't get injured … I also increased my flexibility, which is something I had never worked on. I had so much free time that I took that time to stretch more because my physiotherapist suggested it could prevent me getting injured again.

Athletes also recalled experiencing psychological growth, which was reported to entail developing positive relations with others, having a new appreciation and outlook on life, having a new appreciation and outlook on sport, gaining a new awareness of one's limits and capabilities, gaining a sense of mastery, and having a greater knowledge of health-related behaviors. This growth was a result of investing time and effort into their social network (e.g., family, friends, coach, and physiotherapist) and taking the time to reflect. For example, one athlete mentioned:

> Before my injury I had an awful relationship with my mum, we couldn't be in the room with one another without arguing! My mum helped me so much throughout my injury, even with things like putting my socks on and helping me to the bathroom. I realized how good she was to me during my worst time, and I appreciate her far more now, which has brought us so much closer. We now spend a lot of time together, respect each other more and I do my best to help her out around the house.

Finally, all athletes recalled experiencing behavioral growth, which is reflective of positive actions. The actions include warming up and cooling down properly, eating healthier, having a better work-life balance, asking for help when needed, no longer messing about in training, spending more time with family and friends, helping people who need it (e.g., injured athletes), listening more carefully to others, and performing better in sport. This growth developed by investing time into their physical and social resources. For example, one athlete commented:

> Before my injury I used to think, 'I am slim, if I don't exercise much it doesn't matter, nothing can stop me'. I thought because I was slim I was fit; I ate what I wanted, I trained when I wanted and I messed around [in training] so much … I would warm up for about 2 minutes and wouldn't bother to cool down. But from dislocating my hip, it was the most painful experience ever … It scared me so much. I also put on so much weight and couldn't train … I realized what I was eating was unhealthy. Now, I have changed my diet, I know when is the time to be serious in training, and I make sure I warm up and cool down every session because I never want to injure myself like that again.

In contrast to those high in hardiness, the low hardiness counterparts experienced no growth-related outcomes. They reported three contrasting resultant outcomes: (a) returning back to sport too early, (b) re-injury, and (c) poor sporting performance. Indeed, over half the athletes low in hardiness reported that they returned back to training and/or competition too early because they wanted to feel good again or they were getting bored. One athlete mentioned, "I started feeling a little bit better so I just went back, I knew I wasn't 100% but I got bored being at home." This resultant outcome however, led to them getting re-injured:

> I didn't cope with my injury very well at all. Being injured is the worst thing ever. At the start I was so angry, rehabilitation was slow and I was in pain for so long; I got so

> bored of being injured and missed playing so much, I went back a few weeks earlier than the physiotherapist said but I thought I would be fine. But, I got re-injured and now need an operation on my knee!

For those who did not get injured, they recalled performing badly in their first session back. They mentioned being 'more in their head' rather than focusing on their game plan or tactics, and would pull away from tackles or demanding actions to protect their injury body part. For example, one athlete expressed:

> I got bored and just wanted to return. I lost my place in the first team, because I retuned when I wasn't fit or ready and played so badly. My coach took me off after only 10 minutes in the game. I was so excited about coming back but after my performance, I didn't feel good.

Discussion

The purpose of this study was to explain how injured athletes high in hardiness are able to promote SRG and explore why those low hardiness were unable to foster such perceived benefits. Findings revealed that athletes high in hardiness were able to experience SRG because their support network provided them with an outlet for their emotions, which enabled them to reframe their injury from a stressful event into a challenge to overcome. From having a challenge appraisal, the athletes were able to experience positive affect (e.g., gratitude, optimism, interest), which incentivized them to invest their time and effort into their physical and social resources. Interestingly, these findings not only refine and extend findings form Study 1, but also significantly contribute to bodies of literature focusing on hardiness and SRG. In term of Study 1, the current findings extends it in four important ways: (a) it describes the use of emotional support and positive reframing and how they relate to one another, (b) it gives greater insights into the participants' SRG experiences (i.e., physiological, psychological, and behavioral), (c) it explains the mechanisms through which

these coping strategies led to SRG (i.e., positive affect, action tendencies), and (d) it provides a context to the previous findings (e.g., emotional trauma, emotional climate, and personal beliefs).

The findings also extend hardiness research. Maddi (2005) reported that over 1,000 studies on hardiness have been published, and this body of research has shown hardiness to lead to desirable health- and performance-related outcomes through four mechanisms: (a) appraisal, (b) social support, (c) transformational coping, and (d) positive health practices. The findings from this study suggest however, that another mechanism by which hardiness may operate is through positive affect. The study of positive affect has not received much research attention in the sport psychology literature (cf. McCarthy, 2011). However, it is gaining increased attention in other fields of research. One theory that has helped to explain this phenomenon is Frederickson's (1998) broaden-and-build theory of positive emotions. The theory suggests that positive emotions not only 'broaden' an individual's momentary thought-action repertoire, but also 'build' an individual's resources. For example, the positive emotion of interest is suggested to create the urge to explore, to learn, to immerse oneself in novelty (i.e., thought-action repertoire) and thereby expand one's knowledge base (i.e., durable resource). Interestingly, this resonates with the current findings that show 'interest' led athletes high in hardiness to learn more about their injuries and the recovery process, which promoted psychological growth. What is also noteworthy is that theories and associated research examining SRG have yet to identify positive emotions as a mechanism leading to growth (for a theoretical review, see Joseph & Linley, 2006). Clearly, researchers interested in hardiness, SRG, and/or sport injury should consider the role of positive emotions.

This study also examined the experiences of athletes low in hardiness, which is a group of individuals who have not received a great deal of research attention in sport or other

fields of research. The environments they operated in sport did not encourage disclosure of negative emotions, the support offered to them from their social network outside of sport did not inquire about their psychological needs, and they did not personally believe that emotional disclosure would be advantageous. However, not having an emotional outlet was reported to result in the athletes' suppressing their thoughts and feelings, leading to increasing bouts of intrusive rumination and the inability to reframe. In addition, they would cope with social exchanges in their sporting environment by expressing inauthentic positive emotions. The resultant outcomes from these responses were returning to sport too soon, re-injury and poor performance. Clearly, this is a group of athletes who need to have their psychological needs met through their recovery from injury to promote desirable recovery outcomes. Interestingly, these findings extend previous research in sport psychology examining growth, in that they identify the barriers to positive changes following a stressful event. Many of the sentiments made do resonate with Mankad et al.'s (2009a) research however, who found injured athletes to report feeling as though they needed to inhibit their emotions in a sporting culture to maintain an image associated with being 'tough'. Their study, likes ours, however, only employed one-method of data collection (i.e., semi-structured interviews) and this method is limited in that is that fails to capture the dynamics of sporting cultures. Future researchers, therefore, should consider embracing alternative methodologies (e.g., ethnography) and methods (e.g., observations) to fully understand the social pressures injured athletes encounter. Furthermore, researchers should not only aim to examine 'what' injured athletes say, but also 'how' say it (Smith & Sparkes, 2009).

Considering the importance of meeting injured athletes' psychological needs, the current findings represent a challenge for practitioners. On the one hand, the athletes low in hardiness do not want to disclose their emotions because of the adverse consequences it may have (e.g., sign of weakness, future team selection), yet on the other hand by keeping their

emotions to themselves it is having a negative effect on their physical and psychological recovery. It could be recommended therefore, that sporting clubs aim to challenge and change their culture to encourage emotional disclosure, that support providers (sporting and non-sporting) are taught the communication strategies to foster effective exchanges that challenge athletes' beliefs and promote disclosure, and/or we as a profession also explore other methods of enabling athletes to disclose their emotions (e.g., written disclosure, art therapy, music therapy). For example, a significant body of research has examined the efficacy of written disclosure (for a review, see Frattarolli, 2006); however, very limited research has examined this type of disclosure with injured athletes, and in particular athletes who are prone to emotional suppression (Mankad & Gordon 2010; Mankad, Gordon & Wallman 2009b). Indeed, written disclosure could be used at injury onset and rehabilitation to encourage injured athletes to reframe their situation as a challenge to overcome and/or also during their return-to-sport as a reflective tool to learn for the future. Future researchers are encouraged to explore the efficacy and effectiveness of various interventions to encourage disclosure and whether these in turn can foster SRG.

Chapter 4: Can Emotional Disclosure Promote Growth Following Sport Injury? (Study 3a &3b)

Abstract

The aim of Study 3 was to examine the efficacy of a four-week emotional disclosure intervention to promote SRG with injured athletes low in resilience following their return to competitive sport. The intervention consisted of three groups: Written Disclosure Group (WD) (*N* = 15), Verbal Disclosure Group (VD) (*N* = 15), and a Control Group (C) (*N* = 15). Data were analyzed using a mixed-design (Group x Time) MANOVA. Findings revealed a significant difference between the VD Group and C Group for SRG. There was no significant difference between the WD Group and C Group. Although this study made a significant contribution to research, Study 3a only reported the statistical significance of the intervention, not the participants' perception of the procedures and the importance of the elicited outcomes. Therefore for examine this is further depth, Study 3b consisted of 30 interviews with athletes inform Study 3a: WD Group (*N* = 10), VD Group (*N* =10), and C Group (*N* = 10). Semi-structured interviews were used and analyzed using thematic analysis. Both the VD and the WD Groups found writing and talking to be cathartic. Those in the VD Group were able to re-organize their thoughts leading to a coherent story which led to SRG. However, those in the WD Group reported that they were unable to fully understand their emotions, suggesting that they may have still been working through their injury experience. This study has applied implications for practitioners working with injured athletes.

Study 3a

Introduction

Athletes often find injury to be a stressful experience. With unfamiliar and varied demands and emotions, injury can pose a significant threat to their identity and well-being. At a result, injured athletes have been observed to struggle to regulate the intense emotional responses they experience throughout their recovery (for a review, see Wadey & Evans, 2011). One reason cited in the literature why injured athletes may find it so challenging is that the sporting environments they operate in do not encourage them to disclose their emotions. Indeed, Mankad, Gordon, and Wallman (2009a) found the emotional climate in sporting environments promoted positivity and toughness, with emotional expression considered a sign of weakness that may have negative consequences (e.g., future team-selection). This climate puts athletes in a difficult position; on the one hand they are experiencing intense emotions, yet on the other hand they are encouraged to 'keep a stiff upper lip'. How injured athletes should manage their emotions represents an important dilemma for practitioners working with injured athletes.

Interestingly, Study 2 found injured athletes high in resilience (i.e., personality trait of hardiness) disclosed their emotions throughout their recovery; however, this was to members outside of their sporting environment (e.g., immediate family, close friends, physiotherapist). And this transaction with their social support network was found to have desirable consequences, which included a reappraisal of their injury from a stressful event into a challenge to overcome, as well as a decrease in negative emotions and an increase in positive affect (e.g., empathy, interest, and optimism). Ultimately, these consequences led the resilient athletes to experience a desirable recovery outcome referred to as stress-related growth (SRG). SRG is defined as perceived positive changes that propel an individual to a higher level of functioning than which existed prior to stressor (Park, Cohen, & Murch, 1996).

Examples of the changes reported by the injured athletes were increased resilience, strengthened social relationships, and being in possession of a greater empathy for others. In contrast, athletes low in resilience reported that they were unable to disclose their emotions for three reasons: (a) they did not want to challenge the social norms of their sporting environment, (b) their social support network outside of sport was ineffective in meeting their psychological needs, and (c) they did not believe disclosure was beneficial. As a result, the athletes low in resilience reported suppressing their emotions, which was found to result in a number of short-term (e.g., intrusive rumination and unable to re-appraise their injury) and long-term negative outcomes (e.g., re-injury, poor sporting performance). Taken together, it is evident that athletes high in resilience have the resources outside of sport to cope with their emotions, whereas their low resilient counterparts need to identify effective ways to disclose their emotions to meet their psychosocial needs and achieve desirable recovery outcomes.

To enable injured athletes to express their emotions, thereby avoiding negative outcomes and promoting positive adjustment, three strategies were recommended in Study 2: (a) sporting organizations and clubs challenge and change their emotional climate, (b) social support networks outside of sport are educated on how to provide effective social support, and (c) researchers and practitioners aim to examine the efficacy and effectiveness of other ways of disclosure. One method of disclosure that has recently been explored in the context of sport injury is written disclosure. The first study was conducted by Mankad, Gordon, and Wallman (2009b) who examined the effect of written disclosure with a male athlete rehabilitating from an anterior cruciate ligament reconstruction. The intervention required 3x20 minute writing tasks performed over three consecutive days. Findings demonstrated a decrease in strain (i.e., avoidance and intrusion symptoms) and mood disturbance (e.g., anger and tension), as well as an increase in self-esteem. Using the same intervention protocol, Mankad, Gordon, and Wallman (2009c) and Mankad and Gordon (2010) extended this study

by examining a group of injured athletes and a diverse range of dependent variables (i.e., strain, mood disturbance, grief responses, rehabilitation beliefs, and immune functioning). Findings demonstrated no significant change in rehabilitation beliefs; however, there was a significant decrease in negative affect (i.e., mood disturbance and grief responses) and an increase in positive affect (i.e., vigor and reorganization) and immune functioning (i.e., immune expression).

Collectively, the aforementioned studies offer preliminary evidence for written disclosure to be used as a therapeutic tool in addressing injured athletes' psychological needs. Despite the merits of these intervention studies however, it is important that future researchers and practitioners are aware of their shortcomings: (a) no control groups were used, thereby making it challenging to assess the efficacy of the intervention; (b) specific populations of injured-athletes who are at risk of suppressing their emotions were not targeted (e.g., athletes low in resilience), which may 'dilute' the intervention effects; (c) mechanisms underlying the intervention effects were not explored. Identifying these mechanisms is both of theoretical and practical importance; (d) the dependent variables were more focused on rehabilitation processes rather than recovery outcomes (cf. Brewer, Andersen, & Van Raalte, 2002; Wiese-Bjornstal et al., 1998); (e) only written disclosure was explored. Indeed, researchers in other disciplines have compared written disclosure with other types of disclosure such as verbal disclosure (e.g., Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994; Lyubomirsky, Sousa, & Dickerhoof, 2006, Murray & Segal, 1994); and (f) the interventions were all conducted during the rehabilitation phase of recovery. Future researchers should also aim to explore the efficacy of the intervention during injury onset and return-to-sport phases, which have both been observed to be stressful (e.g., Bianco, Malo, & Orlick 1999; Podlog & Eklund, 2006).

Drawing from the literature examining the efficacy of disclosure interventions outside the discipline of sport and exercise psychology, findings suggest that in order to facilitate positive outcomes participants should disclose about the stressful experience each week for a minimum of 20 minutes, for a least three weeks (e.g., Batten et al., 2002; Esterling et al., 1994; Stanton et al., 2001). Within interventions studies, writing sessions have varied from one to seven sessions (e.g., Pennebaker & Beall, 1986; Klein & Boals, 2001; Schoutrop et al., 2002); however, Pennebaker (2000) recommended that people should disclose for least three sessions to reap the benefits. Indeed, writing (or talking) for fewer than three sessions was observed to not be as helpful because participants are less likely to obtain sufficient insights and knowledge about the stressful event. With regard to the duration between sessions, some studies have used consecutive days, whereas others have used weekly intervals (e.g., Epstein, Sloan, & Marx, 2005; Esterling et al., 1994). Smyth (1998) found that studies with longer intervals between disclosure sessions (e.g., weekly sessions) had larger effect sizes than studies with shorter intervals between sessions (e.g., daily sessions). His explanation for this finding was that longer intervals may reduce the risk of fatigue on the part of the participant and may provide them with more time to fully understand and gain insights about the stressful event being disclosed.

The purpose of this study is to extend previous research examining written disclosure following sport injury (Mankad et al., 2009b, 2009c; Mankad & Gordon, 2010). It aims to extend this research in five important ways: inclusion of a control group, using a sample pool at risk of emotional suppression (i.e., athletes low in hardiness), examining the effect of the intervention on recovery processes and outcomes, conducting the intervention during the return-to-sport phase of recovery, and comparing the efficacy of two types of disclosure (i.e., verbal and written). Specifically, the aim of this study is to examine the efficacy of a four-week emotional disclosure intervention with injured athletes low in resilience during their

return to competitive sport. Consistent with previous disclosure research and recommendations (e.g., Baike & Mcllwain, 2008; Esterling et al., 1994, Francis & Pennebaker, 1992; Lyubomirsky, Sousa, & Dickerhoof, 2006), the current intervention was for four weeks (i.e., one session per week) and included a 4 week follow-up. The intervention consistent of three groups: a written-disclosure group (WD Group), verbal-disclosure group (VD Group), and a control group (C Group). Informed by the findings from Study 2, the dependent variables selected were cognitive processes, negative emotions, positive emotions, and SRG. Based on previous research (e.g., Mankad & Gordon, 2010; Salim et al., 2015), the following two hypotheses were proposed. Hypothesis 1: There will be a significant difference between the groups for SRG. The VD and WD Groups will report more SRG than the C Group. As Lyubomirsky et al. (2006) found no difference in the efficacy between written and verbal disclosure, and researchers have yet to compare different types of disclosure in the context of sport injury, no hypotheses are forwarded comparing written and verbal disclosure. Hypothesis 2: There will be a significant difference between Sessions 1-4 for positive emotions, negative emotions, and cognitive processing. Positive emotions and cognitive processing will increase, whereas negative emotions will decrease.

Method

Sample and Participant Selection

The participant selection criteria were threefold: (a) potential participants had to have been injured through sport for a minimum of four-weeks. Indeed, this study was only interested in 'sport'-related injuries, and previous researchers have used four-weeks as the length of time to define a 'serious' sport injury (Bianco et al., 1999); (b) potential participants had to have returned to sport following a serious injury in the past six months. This criterion aligns with the aim of the study, which is to examine the efficacy of the intervention during the return-to-sport phase of recovery; and (c) potential participants had to be low in resilience

(i.e., personality trait of hardiness) as Study 1 found them to suppress their emotions throughout their recovery. Theoretical sampling was used to meet this criterion, which entailed potential participants completing the Dispositional Resilience Scale (Bartone, Ursano, Wright, & Ingraham, 1989). If athletes scored below the 25th percentile of Study 1's findings (i.e., 55 or below for this study), they were considered to be low in resilience. In total, 214 injured athletes who recently returned to sport were sampled, with only 52 considered to be low in resilience. In order to figure out a sufficient sample size for the intervention, G*Power was used to estimate the sample size required.

The resultant 52 potential participants were then matched across the three groups: WD Group, VD Group, or C Group. The aim was to match the groups as much as possible across a number of pre-determined characteristics: sex, sport type, standards of competition, and severity of injury (cf. Weise-Bjornstal et al., 1998). Although Study 1 only found sport type to significantly affect SRG, this is only one published study and the Authors wanted to make sure that any changes reported in this study were the results of the intervention rather than demographic differences between the groups. Participants who were duplicated or could not be matched across the groups were omitted from the study (N=5), and some dropped out due to external commitments (N=2).

The final sample consisted of 15 athletes in each group. All 45 athletes were then invited to fully participate in the study. All agreed and provided written consent in line with the University's Ethics Committee. Of the 45 athletes, 17 were female and 28 were male, with a mean age of 23.2 (*SD* = 5.22). They represented a number of individual and team sports, ranged from recreational to international levels of competition, and sustained a variety of injuries (see Tables 3-5). All participants had fully recovered from their injuries and returned to full training and/or competition.

Table 3. Participant information for the WD Group

Participant	Sport	Sex	Age	Injury	Time out (days)	Returned (days)
1	Basketball	Male	20	Broken index finger	35	147
2	Basketball	Female	24	Back injury	84	56
3	Football	Male	20	Otitis pubis	441	441
4	Rowing	Male	20	Slipped disc in back	56	140
5	Football	Male	20	Broken clavicle	560	56
6	Running	Female	32	Fractured femur	364	112
7	Football	Male	20	Damaged quadriceps	28	28
8	Football	Male	19	Ruptured Achilles tendon	40	140
9	Running	Female	27	Pulled calf muscle	70	70
10	Rugby	Female	20	Dislocated hip	28	228
11	Dance	Female	21	Pectineus strain	224	7
12	Netball	Female	37	Dislocated knee	728	728
13	Gymnastics	Female	20	Dislocated ankle	168	294
14	Football	Male	24	Broken hand	28	98
15	Football	Male	24	Torn knee ligament	392	70

Table 4. Participant information for VD Group

Participant	Sport	Sex	Age	Injury	Time out (days)	Returned (days)
16	Gymnastics	Female	18	Ankle ligament damage	42	14
17	Football	Male	23	Sprained ankle	1092	84
18	Rugby	Male	18	Torn ligament in ankle	92	364
19	Football	Male	19	Twisted knee	42	165
20	Athletics	Female	20	Shin splints	40	154
21	Jiu-jitsu	Female	26	Torn ligament in knee	126	98
22	Boxing	Male	19	Dislocated knee	28	98
23	Football	Male	24	Lower back injury	140	504
24	Football	Female	31	Ankle damage	112	210
25	Rugby	Male	23	Dislocated patella	49	140
26	Muay Thai	Male	40	ACL tear to knee	364	210
27	Running	Male	18	Ligament injury in wrist	112	140
28	Rugby	Male	18	Ligament damage in knee	175	420
29	Football	Male	20	Torn hamstring	28	112
30	MMA	Male	25	Patella-femoral syndrome	364	168

Table 5. Participant information for C Group

Participant	Sport	Sex	Age	Injury	Time out (days)	Returned (days)
31	Football	Male	25	Broken ankle	140	700
32	Football	Male	29	Pulled ankle ligament	112	560
33	Football	Male	21	Ligament sprain in knee	84	98
34	Running	Female	30	Broken leg	350	42
35	Dance	Male	22	Damaged ankle ligament	105	4
36	Basketball	Female	24	Sprained wrist	98	224
37	Gymnastics	Male	22	Broken metatarsal	140	140
38	Gymnastics	Male	24	Fractured ankle	84	84
39	Gaelic football	Female	20	Broken knuckle	119	35
40	Diving	Female	21	Patella tendonitis	364	147
41	Running	Female	20	Shin splints	112	70
42	Football	Female	18	Fractured ankle	168	224
43	Football	Male	20	Chronic knee pain	728	420
44	Cycling	Male	35	Fractured femur.	49	35
45	Football	Male	26	Pulled hamstring	98	28

Measures

SRG. The Stress-Related Growth Scale (SRGS; Park et al., 1996) was used to assess SRG pre-and post-intervention and at the 4-week follow-up. SRGS is a 50-item one-dimensional questionnaire designed to assess individuals' perceptions of whether they experience positive outcomes following a stressful event (e.g., "*I developed new relationships with helpful others*" and "*I learned that I was stronger than I thought I was*"). To ascertain athletes' perceptions of SRG, the original stem was modified from "*Rate how much you experienced each item below as a result of this year's most stressful event*" to "*Rate how much you experienced each item below as a result of your recent injury experience*". Participants were asked to rate each item from 0 (*not at all*), 1 (*somewhat*) or 2 (*a great deal*). Psychometric analyses showed the SRGS to have satisfactory internal consistency, model fit and test-retest reliability (Park et al., 1996; Salim et al., 2015).

Manipulation check. A manipulation check (Pennebaker, Colder, & Sharp, 1990) was used to ensure the participants were conducting the task correctly after each intervention session (i.e., the experimental conditions were disclosing their thoughts and feelings). It contains nine statements (e.g., *Overall how much emotion did you disclose in the entries you wrote about*?) and one open ended question (i.e., *What do you think the experiment was trying to prove*?). Consistent with previous research (Murray & Segal, 1994), for those participants completing the verbal condition, the word 'wrote' was changed to 'spoke'. Each participant was asked to indicate the truthfulness of each statement on a 5-point Likert scale anchored from 1 (*not at all true*) to 5 (*completely true*). Higher scores demonstrated whether the participants adhered to the specific instructions.

Procedure

Potential participants were recruited by approaching a number of sporting Universities and sports clubs across the United Kingdom. Institutions were contacted by phone and email to discuss the nature of the study, and whether they would be willing to provide access to potential participants. All Universities and sports clubs who were contacted agreed that the first Author could approach their athletes. For those athletes who met the selection criteria and provided their informed consent, a suitable time to conduct the intervention was discussed. All interventions took place in a University office. Consistent with previous research and standardized instructions from Pennebaker and Beall (1986), the participants then experienced one of three manipulations. Participants were randomly assigned to one of three groups: verbal (VD), written (WD), and control (C group). Participants were matched across groups according to the nature of their injury, time since returning, sport, level of participation, and gender. When a match was obtained for a participant already assigned to a group, the new participant was randomly assigned to one of the other groups. When two matches had already been obtained and assigned to a group, that participant was assigned to

the remaining group. Participants who could not be matched across the three groups according to the criteria were subsequently omitted from the study. Participants in the WD Group were asked to write about their deepest thoughts and feelings regarding their sporting injury. Those in the VD Group were asked to talk about their deepest thoughts and feelings regarding their sporting injury into an audio-tape recorder. Finally, those in the C group were asked to write facts about their daily events. Participants completed four 20 minute sessions, one session per week. After each session, the participants were also required to complete the manipulation check. In the first and fourth sessions the participants completed the SRGS, and once again 4 weeks after the intervention (i.e., follow-up measure).

Data Analysis

Data were analyzed using SPSS 19.0 and involved four stages. First, the data were entered and then screened to check for accuracy and statistical assumptions. All statistical assumptions were met. Second, the means and standard deviations of the manipulation check were examined to see how much emotion was disclosed, and how meaningful the journals were for each of the intervention groups. Third, a mixed-design (Group x Time) MANOVA was conducted to assess SRG between groups. Follow-up Bonferroni corrected pairwise comparisons tests were used to isolate mean differences. Forth, Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001) was used to analyze the content of the verbal and written disclosure for each of the four intervention sessions. This software is designed to assess grammatical, linguistic, and psychological features of text documents. Based on Salim et al.'s (2015) findings and our hypotheses, this study was only interested in three measures: (a) words indicating that the participant experienced positive emotions, (b) words indicating that the participant experienced negative emotions, and (c) words indicating that the participant engaged in cognitive processes. Finally, a mixed-design (Group x Time) MANOVA was conducted on the LIWC findings to examine the differences within groups

for the intervention sessions. Follow-up ANOVA tests were conducted to isolate mean differences. The frequency of use for positive, negative and cognitive mechanism words was examined.

Results

Preliminary Analyses

Preliminary analyses involved checking the SRG scores between groups at Time 1 (i.e., pre-intervention). Findings revealed no significant difference was found between the groups: VD Group and WD Group (p = .87), WD Group and C Group (p = .53), and VD Group and C Group (p = .43).

Manipulation Check

A manipulation check was conducted at the end of each of the four sessions to examine how much emotion the participants disclosed and the meaningfulness of each entry. Consistent with previous research (e.g., Pennebaker, Colder, & Sharp, 1990; Stockton, Hunt, & Joseph, 2014), only two questions relating to how much emotion was disclosed and how meaningful each entry were analyzed. Findings revealed a significant difference between the WD Group and C Group, and VD Group and C Group for emotions disclosure and their meaningfulness (ps. > .05). Both the WD and VD Groups disclosed more emotions and their entries were more meaningful than the C Group. There was no significant difference between the WD and VD groups ($ps.$ > .05). Consistent with Pennebaker, Colder, and Sharp (1990) who developed the manipulation check, these findings show that the experimental manipulation was successful, with both the experimental groups expressing more emotions throughout disclosure than the control group. All means (SD) are displayed in Table 6.

Hypothesis 1: Stress-Related Growth

Findings revealed a significant main effect for group (F [1,42] = 3.38, p = .04, η_p^2= .14). Bonferroni pairwise comparisons indicated a significant difference between the VD

Group and C Group for SRG (p = .04). From exploring the mean values, the VD Group reported more SRG than the C Group. No significant difference was found between the VD Group and WD Group (p = 1.00) or the WD Group and C Group for SRG (p = .24). All means (SD) are displayed in Table 7.

Table 6. Means and standard deviations for groups for emotions disclosed and meaningfulness for each session

Condition	Session 1			Session 2			Session 3			Session 4		
	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*
Meaningful	3.60 (1.12)	3.33 (.97)	2.53 (.74)	3.60 (1.12)	3.53 (.83)	2.40 (.74)	3.93 (.70)	3.53 (.74)	2.20 (.67)	4.40 (.74)	3.80 (.68)	2.13 (.74)
Emotional	3.80 (.92)	3.70 (.91)	1.40 (.50)	3.71 (1.05)	3.60 (.82)	1.20 (.41)	3.90 (.79)	3.80 (.83)	1.30 (.52)	4.20 (1.01)	4.00 (.65)	1.13 (.61)

Table 7. Means and standard deviations for groups and SRG at Time 1, Time 2 and Time 3

	Time Phase					
	Time 1		Time 2		Time 3	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*
Writing (*N* = 15)	44.47	19.71	43.87	15.97	58.17	17.81
Talking (*N* = 15)	40.17	26.15	44.73	19.65	59.41	23.44
Control *(N* = 15)	42.67	21.49	37.57	14.91	40.87	18.43

Table 8. Means and standard deviations for groups, sessions and LIWC for positive, negative and cognitive mechanism words

	Session 1			Session 2			Session 3			Session 4		
Condition	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*	Written *M (SD)*	Verbal *M (SD)*	Control *M (SD)*
Positive Words	2.62 (1.32)	2.69 (.80)	0.94 (.70)	3.11 (1.18)	2.69 (.80)	1.33 (1.07)	3.18 (1.07)	2.69 (.80)	2.50 (1.95)	5.1 (2.16)	3.74 (1.68)	1.78 (1.39)
Negative Words	3.12 (1.17)	1.94 (.68)	0.27 (.26)	2.56 (1.19)	1.94 (.68)	0.29 (.26)	2.42 (1.27)	1.94 (.68)	0.38 (.70)	1.86 (.89)	1.53 (.60)	0.16 (.33)
Cognitive Mechanisms	17.10 (2.18)	17.22 (2.11)	13.02 (1.95)	17.06 (3.02)	17.22 (2.11)	14.02 (1.85)	18.42 (4.27)	17.22 (2.11)	14.49 (1.71)	18.68 (2.61)	18.49 (2.57)	14.55 (1.26)

Hypothesis 2: Linguistic Inquiry and Word Count

Findings also revealed a significant main effect for time (Wilks' Lambda = .60, F [3,40] = 8.76, p = .00, η_p^2= .40). Bonferroni pairwise comparisons revealed no significant difference between Sessions 1 and 2 (p = .30), Sessions 2 and 3 (p = .40), or Sessions 3 and 4 (p = 1.00). However, a significant difference was found between Sessions 1 and 4 (p = .02). From exploring the mean values, there was a significant increase in positive words and cognitive mechanism words over the four weeks and a decrease in negative words. All means (SD) are displayed in Table 8.

Discussion

The aim of this study is to examine the efficacy of a four-week emotional disclosure intervention with injured athletes low in resilience during their return to competitive sport. With regard to Hypothesis 1, the findings were partially supportive in that they revealed the VD group to report more SRG than the C Group. This finding supports Study 2, which revealed emotional disclosure to promote SRG. However, no significant difference was found between the WD Group and C Group. A potential explanation why there was a significant effect for the VD Group and not the WD Group might be due to the amount of words disclosed. The VD Group (M =4700.13 [SD = 1431.03]) disclosed three times as many words than the WD Group (M = 1376.86 [SD = 600.52]). Indeed, the cognitive process of working through a stressful event has been reported to be a challenging endeavor that takes time (e.g., Graybeal, Seagal, & Pennebaker, 2002; Pennebaker & Chung, 2012), and perhaps the VD Group had moved further along this process of reframing their injury experience than the WD Group due to the sheer volume of emotional disclosure in their experimental condition. This explanation further aligns with Hypothesis 2 and previous research (e.g., Mankad et al., 2009b; Mankad & Gordon, 2010), with this

study demonstrating a significant increase in positive words and cognitive processing words as well as a decrease in negative words over time. As suggested by Frattaroli (2006) cognitive processing allows one to make sense of an event, gain insight about a trauma, and organize and integrate an upsetting experience into one's self-schema. In terms of the increase in positive words, Pennebaker and Chung (2012) suggested that these types of words reflect a positive reappraisal of events, which fuels cognitive understanding. Taken together, VD appears more effective in promoting SRG than WD within the time frame used in this study.

Although this study makes a significant contribution to research, it is important that readers are aware of its shortcomings. First, it examined SRG using a self-report measure. Considering SRG was observed to be a multidimensional phenomenon in Study 2, future researchers should consider using additional methods to assess SRG (e.g., formal and informal observations, peer-reports, physical indicators). Secondly, the sample size overall, and for each group was small, future research should consider having a much larger sample size (i.e., minimum of 30 in each group). Another limitation of this study is that the intervention only reported the statistical significance of emotional disclosure promoting SRG. Therefore, it is unclear how the participants felt during and after the intervention and whether the outcomes were of any meaning to them. Indeed, a number of previous researchers have reported the importance of socially validating interventions to examine the effectiveness of the intervention protocol and whether the outcomes are valued by the participants (e.g., Cupal, 1998; Martin & Hrycaiko, 1983; Martin, Vause, & Schwartzman, 2005).

Study 3b

Introduction

> By relying solely on tests of statistical significance as the measure of success for interventions in public health, and in community-based participatory research, we can miss important social dimensions of the project. These dimensions include how our interventions might affect the lives of participants (social validity) and the lives of people more broadly (clinical and public health significance). Social validation procedures were originally developed to assess the acceptability of procedures and effects of behavioral interventions among clients and consumers (Francisco & Butterfoss, 2007, p. 1).

As this quotation reflects, social validation of interventions holds important insights and implications. Indeed, a statistically significant change on a measure of outcome such as the Stress Related-Growth Scale (Park et al., 1996) does not necessary guarantee that the change will be meaningful for the participant. In essence, social validation is a dynamic process of evaluating the acceptability of the intervention and the importance of the treatment goals and outcomes (Kazdin, 1977; Wolf, 1978). In practice, the participants (or their significant others or members/experts with the community) provide their views of the goals, procedures and/or outcomes prior to, during and/or following the intervention (Foster & Mash, 1999). In the sport and exercise psychology literature, it has been repeatedly recommended that researchers elicit participants' perceptions of their involvement in an intervention (e.g., Cupal, 1998; Martin & Hrycaiko, 1983; Martin, Vause, & Schwartzman, 2005). Obtaining this information will not only enrich our understanding of how to improve the procedures of the intervention, but whether it obtains desirable outcomes valued by the participants.

Considering Study 3a only reported the statistical significance of an emotional disclosure intervention with athletes low in hardiness, there is need to evaluate rather than assume the participants' perceptions of the procedures and outcomes of the intervention. The aim of this study, therefore, is to understand the participants' post-intervention appraisal of the acceptability of the intervention procedures (i.e., disclosure) and the importance of the elicited outcomes (i.e., stress-related growth). Specifically, the social validation of procedures is concerned with participants' perceptions of the implementation of the intervention (e.g., What did the participants think of the intervention? Were there any negative side effects?), whereas the social validation of outcomes focuses on the effects of the intervention (e.g., What were the specific outcomes? Did the participants value the outcomes?). Answers to these questions will help to extend Study 3a, as well as previous studies that have examined emotional disclosure in the context of sport injury and not accounted for social validation (Mankad et al., 2009b; Mankad & Gordon, 2010).

Method

Philosophical Assumptions

This study is underpinned by critical realism and modified dualism / objectivism (Lincoln, Lynham & Guba, 2011). These beliefs reflect a post-positivism paradigm, which recognizes that nature can never fully be understood and we can only approximate nature. A number of trustworthiness techniques were used (e.g., peer debriefing to reach consensual agreement upon identified themes and to control for the researchers' values in the research process).

Participants

A purposeful sample of 30 athletes from Study 3a participated in this study. Of the 30 participants, 10 represented each of the three intervention groups: WD

Group, VD Group, and C Group. The mean age of the participants was 23.3 years (SD = 5.2). Sixteen of the participants were male and 14 were female. They represented a number of individual and team sports and ranged from recreational to international levels of competition. The injuries sustained were broken bones (e.g., finger, clavicle, femur, metatarsal, and ankle), torn or pulled muscles or ligaments (e.g., quadriceps, knee, back, hamstring, pectineus, and ankle), dislocation (i.e., hip and knee), sprain (i.e., ankle and wrist), shin splints, and patella tendonitis. All participants had fully recovered from their injuries and returned to full training and/or competition.

Semi-Structured Interview Guide

Rather than using questionnaires or a structured interview guide, which is traditionally used in social validation studies (Kazdin, 1977); a semi-structured interview guide was developed for the purposes of this study. This method of data collection was chosen for four reasons: (a) it aligned with the study's broad aim (i.e., understand participants' perceptions), (b) the authors had a specific agenda (i.e., to understand the acceptability of the procedures and importance of the outcomes), (c) it provided sufficient flexibility to enable the interviewee to talk freely around the pre-determined themes, and (d) it enabled the interviewer to explore any areas that arose spontaneously (Berg, 2009; Kvale & Brinkmann, 2009). Furthermore, this method has proven effective in more contemporary research examining the social validation of interventions (e.g., Neil, Hanton, & Mellalieu, 2013; Mellalieu, Hanton, & Thomas, 2009).

The final version of the interview guides (see appendix 9, 10 & 11) contained five sections. Section one explained the objective of the study, which was to understand their perception of the intervention procedure and the whether they valued the outcomes they obtained. The purpose of section two was to gain rapport with the

participants by getting to know their sporting background. Questions were asked surrounding their involvement within their sport. Section three focused on the acceptability of the interventions protocol. Drawing from recommendations in the literature (e.g., Foster & Mash, 1999; Francisco & Butterfoss, 2007), questions included: What was it like participating in the intervention? Were there any negative side effects? Would you recommend the intervention to other injured athletes? Section four focused on the impact of the intervention. Questions included: What impact, if any, did the intervention have on you? Do you believe the intervention caused this impact? Are these effects meaningful to you? The final section concluded the interview and invited the participant to add to anything previously discussed. Neutral non-directional probes (e.g., Can you give me an example? What do you mean by this?) were used throughout the entire interview process to help with detail, elaboration and clarification (Kvale & Brinkmann 2009).

Procedure

Three months after the follow-up data collection of Study 3a and following ethical approval, a purposeful sample of 10 athletes from each intervention group was invited to participate in this study. Using a maximum variation sampling strategy (Patton, 2002), the criteria for constructing the sample was sex, sport type, injury type, and competitive standard. The rationale for using this sampling strategy is that it is effective in demonstrating shared patterns between participants and uniqueness within them. The selected participants from Study 3a were contacted by phone and informed about the aim of the study and what participation would entail; all agreed to participate. An information sheet and participant consent form was then emailed to them, which was subsequently completed and returned. A time and location was then organized to conduct the interviews. All 30 interviews were conducted face-to-face, in

a room that was provided by the University. Each interview lasted between 55 and 130 minutes (M = 69.1; SD = 16.8).

Data Analysis

Thematic analysis was used to analyze the data (Braun & Clarke, 2006). Data analysis consistent of six steps. First, the researcher read and re-read the transcripts to familiarize herself with the data. Second, the researcher identified important features within the transcripts in a systematic manner using general codes. These codes were written in the margins of each transcript and categorized into meaningful groups (Tuckett, 2005). Some of the data were un-coded, coded once, or coded many times. Third, the researcher searched for themes. Once all the data were initially coded, they were put into potential themes or discarded. Once all the themes and subthemes had been identified, the researcher aimed to refine them. Fourth, to refine the themes, all extracts for each theme had to be read and re-read, to consider whether they fitted well into that theme. If the extracts did not fit well into the current theme then the researcher had to consider whether it was the theme that was problematic, or whether some of the extracts within it simply do not fit well. If this was the case, then the researcher had to either recreate a new theme or subtheme, place the extracts into another theme, or discarded this data. Fifth a thematic map was developed. Once the researcher was satisfied with the themes and subthemes a thematic map was developed, whereby the researcher reviewed all of the themes and subthemes together and involved an ongoing analysis to refine the specifics of each theme, generating clear definitions and labels. The final step consisted of compiling themes and relating these back to both the research questions and the literature (Braun & Clarke, 2006).

Trustworthiness

For this study, two trustworthiness techniques were implemented to bolster the rigor of the findings: member checking and peer-debriefing. These techniques were used over three phases. First, all the data were transcribed, and the researcher posted the transcripts to all participants to verify the data. This gave them the opportunity to check their accounts and add any commentary. All transcripts were verified and no commentary was added at this stage. Second, during data analysis the researcher used the supervisors as 'critical friends' (e.g., Faulkner & Sparkes, 1999). Specifically, this involved the supervisor questioning the researcher to ensure her personal experiences and/or beliefs were not biasing her interpretations of the findings, and that she had reflected the participants' experiences. This process involved the researcher continuously going back and forth between the transcripts and her supervisor. The interpretations were continuously discussed and reflected upon until the researcher and supervisors were all in agreement. Finally, the participants reviewed their results with the researcher to verify that the interpretations were an accurate of their experiences and were given the opportunity to add any additional dialogue. All participants confirmed the researcher's interpretations and chose to not add any commentary.

Results

Aligned with the aim of the study, the results are divided into two main categories: 'Social Validation of Procedures' and 'Social Validation of Outcomes'. Within these categories, they are each subdivided into the three groups: VD Group, WD Group, and C Group. And within each of the groups, the emergent themes are described. In total, there were 24 emergent themes across the categories and groups.

Social Validation of Procedures

Verbal disclosure. Within this group, there were six emergent themes: (a) One-Way Conversation, (b) Organic and Cathartic Process, (d) Putting the Puzzle Together, (e) New Insights, (e) Negative Affect, and (f) It is Good to Talk. The first theme, *One-Way Conversation*, reflected the participants thoughts and feelings regarding talking into a tape recorder and not having someone physically there to talk to. All participants in the VD Group highlighted that talking about their injury into a tape recorder initially felt uncomfortable as no one was listening and there was no response. For example, one athlete recalled, "For the first minute it seemed really weird to be talking to myself, it was very weird because I had never done anything like that before, you know talking out loud by myself."

The second theme, *Organic and Cathartic Process*, emerged once the participants had overcome the initial uncomfortable feeling of disclosing alone. Participants highlighted that it soon felt natural to talk, and the process of talking was organic. One participant mentioned, "After the first minute, it just seemed like I was talking to a friend; it was so natural to say how I felt." Another athlete recalled:

> It seemed really weird to start off with, because I never talk to myself out loud, but after the initial minute or so, as the session progressed I forgot that I was talking to a tape recorder and nobody was in the room.

The third theme, *Putting the Puzzle Together*, was reflective of the participants' thoughts being jumbled and unorganized, but from talking out loud they were soon able to put their experiences into a story-like format. One participant recalled:

> In my head it seemed like a jumbled, incoherent mess … Funny enough though, I think it actually came out in a structured way, almost like a story. As

each session went on, it became more structured and I think it ended up as a story from the start of my injury all the way through to my return.

From talking out loud about their injury experience, they soon found they developed, *New Insights*, from their experiences. For example, one athlete mentioned, "I found myself talking about emotions that I didn't even know I felt. I felt like I was listening to myself talk." Another athlete recalled:

> It was like I stepped outside of my body and listened to myself talk. I found myself saying things that I didn't realize I thought. For example, the way I reacted to people who were trying to offer me help was awful and uncalled for … You remember things that you never even acknowledged at the time of being injured because you were concerned about was getting back to training. This task made me see all the smaller, but maybe more important details.

From talking through their injuries and developing new insights in the early sessions, many of the participants reported experiencing, *Negative Affect*. They reported feeling angry and frustrated at themselves. One athlete recalled "Talking about being injured made me feel angry because it puts you back into that moment of getting injured again … I could feel that frustration again from when I was off for so long."

This negative affect however, was reported to dissipate over time and be replaced with other emotions. The final theme, *It is Good to Talk*, reflected the positive experiences of talking and that the participants would recommend it to other injured athletes. These positive experiences promoted a feeling of relief, gratitude towards others, and a greater interest in themselves. All participants experienced this from their disclosure sessions as it made them more 'aware of their emotions',

enhancing their knowledge and understanding of their injury and how they felt about it. One athlete mentioned:

> I never really say how I feel, like talk about my emotions. I never discussed how I felt about my injury because I didn't think anybody would want to hear … I didn't realize I felt so emotional about it to be honest … It was such a relief to get it all out of my head.

All the athletes reported that they would recommend the intervention protocol to other injured athletes. Some even reported that disclosing to him or herself was more effective than disclosing to others. One athlete recalled:

> I feel like, you can talk to someone about your emotions, but I never think you truly actually tell them everything you are thinking. Whereas, when I was talking, I could say everything and anything I wanted and it was so easy to do. … I learnt about myself, how I treated others and how I want to change things in my life for the better … I never really stopped to think about how my injury impacted me and how my actions impacted other people. I would have never looked back and re-analyzed this … And if I had got injured again, I would have been exactly the same, really negative… I'd recommend it, especially at the top level because it is a lonely, tough and stressful environment and I think it is worthwhile. It is good to let it out and clear your mind.

Written disclosure. Within this group, there were seven emergent themes: (a) Getting into the Flow of Writing, (b) Structured, (c) Keeping up with my Thoughts, (d) Seeing is Believing, (e) Cathartic Process, (f) Negative Affect, and (g) Unfinished Business. The first theme, *Getting into the Flow of Writing* was expressed by the WD Group. These participants recalled that that they had difficulty when they first begun to write then once they started it became much easier. One athlete expressed:

> Writing started pretty difficult, I wasn't sure how I should start or even what I was going to write. It took me a few minutes to think about what I wanted to say, and how to say it. I spent time thinking about how to get into the flow of writing.

The second theme was *Structured.* All participants recalled that another reason as to why it was difficult to get going with their writing was because they felt as though their writing had to be structured. Although they were instructed to not worry about spelling, grammar or sentence structure, they still felt conscious about their entries making sense, which in practice involved them stopping to think about what they would write. Participants felt as though they should be writing their injury process as a story. As recalled by one athlete:

> The issue I had was that I overthought about what I should and shouldn't write. I felt it needed to be structured like a story … The first session I tried to write my whole story but briefly, then I tried to go back and re-address things that I thought were more important, so it ended up having different bits of story all over the place.

The third theme was *Keeping up with my Thoughts.* Participants in the WD reported that once they managed to get into the flow of writing they realized they had so much to write about, and their thoughts were moving faster than they could physically write. This in turn led to them forgetting certain things they wanted to write. One participant mentioned:

> Once I got into the flow of writing I found that I had too much I wanted to write down but I could only think and write about one thing at a time…. I had so many thoughts running through my mind and often when I was writing, there were things I wanted to say but forgot once I finished the point I was

making … On all of the sessions I ran out of time before I could finish what I wanted to say.

The fourth theme found for the WD Group was *Seeing is Believing*, meaning that writing made them aware of thoughts and feelings that they never realized they had experienced. For example, one athlete recalled:

> I never realized how I felt about my injury until I wrote it all down and saw it on the paper, you know what they say, "seeing is believing". I didn't believe that my injury affected my life in such a way until I wrote it down. It explains a lot of my behavior because I was so upset about my injury.

Throughout the WD sessions the participants mentioned that writing was a *Cathartic Process*, because it allowed them to release their emotions. Some athletes reported, "When you are writing it down for yourself, everything you are actually feeling is coming out and I felt like it was a bit of a release at the end of it … the good thing about it was that it was so easy to jot down what that you are thinking". As recalled by another athlete:

> It was so nice to just release those thoughts and feelings about my injury. I have never really told anybody how I got injured or what it was like to be injured, it was like a weight off my chest to get it down on paper.

Although during the sessions participants reported writing felt like a cathartic process, they also recalled experiencing *Negative Affect*. However, it was expressed that the negative feelings reported were only temporary. One participant recalled feeling as though the task brought back certain emotions experienced such as feeling a little sad when talking about his injury:

> I got dropped from the squad because of my injury, when I really thought about it whilst I was writing about it I actually felt a little bit sad about it

again. I've never really discussed how I felt with anyone, so yeah at that moment it made me feel a little sad. It did not last long though, and once I moved on with my writing I no longer felt like that.

The final theme identified from the WD Group was *Unfinished Business*. All participants recalled that using WD was an excellent way to release your thoughts and feelings; however, they recalled needing more time to fully understand their experience. All participants reported that they would recommend the protocol to other injured athletes. One athlete expressed how writing felt better than disclosing to someone. As expressed by one athlete:

> It [written disclosure] would work as a great intervention for injured athletes because it is so easy to do. Writing is quite a natural thing; that's why a lot of people keep a diary. It's something you can do alone and just put to the side… It doesn't take much time to write a few things down and clear your mind. I always have so much going on in my mind, so having somewhere to offload my stresses is such a relief.

Control Group. Within this group, there were five emergent themes: (a) Getting Started, (b) Trying to Remember, (c) Too Much Time, (d) Repetitive, and (e) Not Natural. In terms of the first theme, *Getting Started*, all the participants in the C Group reported that the daily dairy was difficult to start with because they had never kept a diary before and did not know how to begin. As reported by one athlete:

> This was the first time I have ever had to keep a diary and I wasn't sure how much I could write in 20 minutes. I didn't know how much detail to go into and so I found the first few minutes really difficult. I sat there for a while trying to figure out how to begin the dairy.

The second theme found for the C Group was *Trying to Remember*. Once participants managed to get started with their writing, they mentioned finding it difficult to recall all the things they did the day before coming to the writing session. As expressed by one participant:

> I never think about what I am doing in a day, I just do it. I didn't realize how difficult it would be to remember what I did the day before. I had to think so hard about aspects of my day such as what I ate for breakfast and what I did at work. I had to keep stopping to really think back to the day before.

The third theme was that all athletes felt they had *Too Much Time.* All athletes reported that when they remembered what they did in a day, they did not feel they needed 20 minutes to describe it. They recalled that 20 minutes was far too long to describe their daily activities even when discussing aspects of their day in detail. As reported by one participant:

> I wrote everything I could in as much detail as possible but I still found myself completing the daily diary really quickly. I then had to go back to the beginning and write it all again. There is only so much detail about facts of your day.

The forth theme for the C Group was that the daily diary seemed *Repetitive.* Participants reported that they only had a certain amount of things they could say within their diaries meaning they had to repeat themselves. Participants also mentioned that their days did not change too much so all four days seemed to have similar entries. As expressed by one participant:

> When I ran out of things to say I then had to start back at the beginning of my day to make sure I wrote for the 20 minutes … On a day to day basis I do similar things such as eating the same breakfast and going to work at the same

time. Unfortunately this meant I was writing pretty much the same thing for all four days which is not the most interesting thing to do.

The final theme identified for the C Group was that writing without any thoughts or emotions was *Not Natural* and they had to remind themselves that it needed to be factual. All of the participants highlighted the difficulty in writing a daily dairy without displaying emotions throughout. One athlete reported, "It's unnatural to write a whole diary without writing about thoughts feelings or emotions. It is normal to write about you felt in a day, I found it difficult."

Social Validation of Outcomes

Verbal disclosure. Three themes were found for this group in terms of SRG: (a) Changes in Perception of Themselves, (b) Changes in Perception of Others, and (c) Changes in Perception of their Behavior towards Future Training and/or Competition. In terms of the first theme, *Changes in Perception of Themselves*, reflected that they learned a great about themselves. In particular, they learned that they are more mentally stronger than they realized, their actions have consequences, they should not take their health for granted, at times they can be too negative and need to be more optimistic, their capabilities and limitations, and the importance of disclosure. One athlete recalled:

> I never thought it would change my thoughts or feelings at all but I have learnt so much about myself from doing this task that I do not think I would have acknowledged otherwise. The way I shut myself off from everyone, I should have spoken to people or found a way to release my thoughts and feelings rather than isolating myself. I feel like if I were to get injured again, I would definitely behave differently towards people around me.

By changing their beliefs about disclosure, enabled participant's to experience *Changes in Perception of Others.* This theme reflected that they learnt to become more accepting of others, appreciated others having a tough time, and realizing there are people to turn to. Many athletes recalled talking about their social support throughout their verbal disclosure session enabled them to reflect on lessons they had learnt. Athletes reported gaining an understanding as to why their social support was not beneficial and why they decided not to disclose to them. Some expressed feeling that the support they were offered did not understand what they needed. Athletes also mentioned that they re-considered the people they would turn to if they were to get injured again. For example:

> When talking about my injury I realized that I didn't talk to people because I didn't think they would understand what I was going through. But I also didn't give them a chance to understand because I was so angry. I guess it was like a vicious circle, I didn't talk to them, then I got angry, then I didn't want to talk to anyone. I should have tried to stay more involved with my team instead of isolating myself … If I got injured again I would definitely spend more time with my team. Talking helped me to understand this.

Participants reported that through gaining a better understanding of themselves and others around them, they then began to think about their present situation which meant they experienced *Changes in Perception Towards Future Training and/or Competition.* Although participants did not recall physically changing their behavior, they recalled that they wanted to change how they behaved towards future training sessions such wanting to be more serious during training, changing their training regime, and make sure they complete recommended future rehabilitation. For example one athlete recalled that he wanted to change the way he trains because he

realized that a reason as to why he might have got injured could have been because he failed to ever warm up or cool down in training and/or competition. One athlete reported:

> I would say the biggest thing I learnt from the talking task was the importance of warming up and cooling down properly. Nobody has really asked me, but when I was talking on the recorder, it forced me to talk about why I got injured then it made me think back. All along I thought that it was just bad luck, but I never warmed up or cooled down. I have definitely taken this on board, I need to make sure I warm up and cool down in all my sessions.

Participants were asked whether they valued the outcomes they experienced from the WD sessions. Participants recalled feelings as though these outcomes had a meaningful impact not only on their sporting performance but also on aspects of their non-sporting lives. In terms of their sporting performance, one athlete reported:

> It has had quite an impact because it has changed the way I look at my training and the way I take my health for granted … I mean, I eat so unhealthily and I train when I can be bothered. Hearing my story made me realize that I need to change this if I want to reduce how often I get injured. Plus, eating healthy will make every day living better.

In terms of having an impact on their non-sporting life, one reported that changes in perception of themselves and of others are outcomes that they will continue to value. One athlete recalled:

> I learnt that I am negative about everything in my life. Initially I thought it was just my injury because I was upset. But the more I talked the more I realized I am pretty negative about most aspects in my life. I now know I need

> to change this and make an effort to be more positive because my negativity just makes me feel rubbish.

Written disclosure. While some participants reported experiencing desirable outcomes, most expressed that they were still working through their experiences. The desirable outcomes reported that the lessons they learned following the intervention were how to train more effectively, learning they need to be more optimistic, and realizing they should not take their health for granted. In terms of working through their experiences, the participants reported that they needed more time to fully understand their injury experience. Themes included, 'Still Putting the Pieces of the Puzzle Together' and 'Accepting the Effects of Injury'. In terms of *Still Putting the Pieces of the Puzzle Together*, participants in the WD Group recalled feeling as though they were still working things through in their minds and were unable to put it together. For example, participants recalled that writing led them to question themselves and their injury to try and understand "Why it happened" or "What happened" but never had enough time to find the answers. One athlete in the WD recalled:

> My story was like a jumbled puzzle and I spent each session trying to write it down and put it together, because I never really had enough time. I never managed to write too much in-depth because time would run out. I did tell my story in my diary but it was probably incoherent in places and I still have no idea about what really happened when I got injured.

Due to participants being unable to write in depth or disclose as much as they wanted meant they were still in the process of *Accepting the Effects of Injury* on their lives. For example, one athlete recalled:

> I started to think about how the injury had an impact on my life, but I never really managed to write that down or work out why. I think I buried my head in the sand for a long time about my injury and just tried to get back on with my life … It probably would have taken a lot more time for me to really begin to understand any changes- if any that it made to my life.

As participants were unable to fit all the pieces of their story together or fully accept the potential affect of their injury, meant participants experienced *Negative Outcomes* which were, feeling as though they were re-opening a wound and developing an undesirable view of themselves. In terms of re-opening a wound, a lot of participants reported that they spent time trying to put their injury to the back of their mind but when they began to write about it, they became aware again. One athlete expressed:

> I felt like I had experienced all that emotion when I got injured, then I ignored it and tried to just carry on. As I was writing it began to bring it to the front of my mind again but I didn't manage to properly re-address it so it is just like opening up an old wound all over again.

In terms of developing an undesirable view of themselves, participants recalled that they started to think about aspects of their injury experience when maybe they had not been nice to people or had acted differently to normal. As one participant expressed:

> I wasn't really myself throughout my injury, I only thought about myself and how to get myself better, I was probably quite rude to my mum and I was out of character in a way. I am not sure what was really going on with me, maybe I was just really angry or something. Writing it down made me have this view of myself which made me feel a little embarrassed.

Control Group. Although the control group did not disclose any thoughts or feelings throughout their daily diaries, they still reported experiencing some positive outcomes from taking part in the intervention. Four themes emerged for this group: (a) Needing to Slow Down, (b) Non-Finisher (c) Needing to Speed Up, and (d) Time Management. In terms of the first theme, *Needing to Slow Down*, four participants recalled that keeping a diary helped them to realize how busy they were and that they needed to slow down their life down a little. As expressed by one participant:

> The daily diary showed me how much I do in a day, no wonder I am so exhausted all the time. People always say to me that I do too much and I never realized I did. I just rush about here to there without thinking about what I am even doing half the time. No wonder I forget so many things.

Rushing about led participants to realize that they were never managed to get one thing finished before starting another, which was reflected, in the second theme of *Unfinished Business.* One participant reported:

> I noticed that I start lots of things and rarely finish them, which is something I never really acknowledged. Where I had lots on I would start on small jobs then just move onto something else then if I remember then go back to that job. It wasn't until I wrote down the things I did the day before only to realize I have a list of things that were half done.

In terms of the third theme, *Needing to Speed Up*, participants recalled that even though they needed to slow down in a day (i.e., do less in a day) they realized that the things they did do, they needed to speed up and get them done. One athlete mentioned:

> So I realized that maybe if I try and do less in a day I can actually finish one thing at a time. I seem to waste so much time either doing pointless tasks or

> starting and not finishing others. I never realized it until I wrote that diary. I need to learn how to speed up what I am doing so I can get things finished and use my time more wisely.

The final theme was *Time Management*. As participants write their daily diaries they learnt that they either waste a lot of time and the time they spend doing tasks end up unfinished they realized they need to manage their time better. One participant reported:

> The dairy has made me aware of what I do in a day and that I need to get better with my time management. I think I will start to write a list of things I need to do, that way I know when I have got things done. I think I am less likely to waste my day on tasks that do not even need to be done.

All participants recalled feeling that although the task was a little tedious towards the end of the fourth day, they would recommend it to injured athletes but during the time of their injury. As highlighted by one athlete:

> I think it would have been really beneficial to be to do when I was injured it would have been a great way to keep track of what I was doing on a day to day basis such as what exercises I did or when I did them. This would have made things a lot easier when my coach or physiotherapist asked about my rehabilitation.

Discussion

The purpose of this study was to understand the participants' post-intervention appraisal of the acceptability of the intervention procedures (i.e., disclosure) and the importance of the elicited outcomes (i.e., stress-related growth). Overall, findings revealed a number of similarities and differences between the VD Group and WD Group. In terms of social validation of procedures, two similarities were found

between the VD and WD Group: (a) disclosure was as cathartic process, and (b) negative affects. In terms of disclosure being a cathartic process, both groups reported it to be a great way to release emotions. This finding was supported by Pennebaker (1997) who found disclosure to be beneficial because it allow participants to get their emotions which is considered to be therapeutic. However, although both groups found disclosure to be therapeutic, they also experienced short-term negative affects during their sessions. This finding is consistent with Gills (2002) who found that although participants experienced an increase in negative mood, this was only short- term and resolved over time.

Although two similarities were found between the disclosure groups, two important differences were found. First, although both groups disclosed in a story-like fashion, however those in the WD Group were found to 'stop and start' throughout and never managed to create a fully coherent story. Smyth, True, and Sotto (2001) highlighted that one of the basic functions of language and conversation is to communicate coherently and understandably. Writing about an emotional experience in an organized way is healthier than in a chaotic way. People are most likely to benefit if they can write a coherent story. It was also found however, that any technique that disrupts the telling of the story or the organization of the story is undoubtedly detrimental. This could provide a possible explanation as to why those in the WD viewed this negatively. Those in the VD Group recalled being able to tell their story of being injured in each session, which was initially incoherent, but over the next few sessions they were able to re-organize their thoughts leading to a coherent story. As highlighted by Sloan, Marx, Epstein, and Dobbs (2008) those who are more likely to benefit from expressive writing are those who are able to reflect

and organize their thoughts about their situation. This in turn will lead to them engage in adaptive problem solving.

Some participants in the VD and the WD Groups reported that they were more comfortable to disclose privately than they would have talking to another person. This finding extends previous research the on the effects of disclosure to another person, as it is quite mixed. For example, Segal and Murray (1994) found that disclosing to another person decreased negative affect just as much as privately talking into a recorder and Newman, Des Jerlais, Turner, and Gribble (2002) found that stigmatized or shame-based experiences are more easily disclosed to an impersonal computer than face-to-face to a person. In contrast, Pennebaker et al. (1987) found that disclosing to a 'silent confessor' behind a screen actually inhibited participants' disclosures. It remains unclear whether disclosing about stressors to another is helpful, and warrants further investigation. The second difference between the VD and the WD Group was that those in the WD Group were unable to keep up with the amount of thoughts they were trying to process. This differed to the VD Group who were able to disclose their entire story and process their emotions, enabling them to re-organize both their thoughts and feelings. Murray and Segal (1994) provided a possible explanation for this study, suggesting that not only is it easier for individuals to talk than it is write because it requires fewer cognitive demands, but it also allows for more kinds of expression (i.e., verbal & vocal).

In terms of social validation of outcomes, not only did those in the VD recall experiencing SRG, but they also reported valuing these outcomes both within and outside of their sport. A possible explanation for this can be drawn upon Frattaroli's (2006) meta-analysis, which purports that experimental disclosure is helpful because it allows the participants to address their thoughts and feelings, enabling them to gain

insight into and understanding of his or her event over time. This in turn will eventually lead to one experiencing positive outcomes. However, those who have not had the opportunity to process them fully, and integrate them into his or her life story are less likely to experience growth. This could therefore provide a potential explanation as to why the WD Group did not experience SRG. Some athletes in the WD Group mentioned they had not fully disclosed or processed their emotions suggesting that they may still be working through their injury experience. In comparison, those in the VD were able to fully disclose and work through the emotions associated with their injury experience, which in turn enhanced their understanding of the situation and led to positive outcomes.

General Conclusions

Findings from Study 3a and 3b provide quantitative and qualitative evidence for the efficacy and effectiveness of using verbal-disclosure to promote SRG with injured athletes prior to their return to competitive sport. Specifically, the findings support previous research in two ways: (a) demonstrates that disclosure can facilitate SRG, and (b) VD was shown to be a better form of disclosure. In terms of demonstrating that disclosure can facilitate growth, these studies support research which has found disclosure (written and verbal) to be beneficial (e.g., Mankad and Gordon, 2010; Frattaroli, 2006; Smyth, 1998). In terms of the VG Group displaying more SRG than both the WD and C Groups, the current research supports Esterling, Antoni, Fletcher, Margulies, and Schneiderman's (1994) work that found that those who talked about their stressful event experienced greater improvements in self-esteem and cognitive change than the writing and control groups. Murray and Segal (1994) suggested disclosing may be easier for those who talk rather than write due to there being less cognitive demands. These studies not only supported previous

research but it also extended it in five important ways: (a) it provided an understanding that there are significant differences between disclosure methods, (b) it described why there are differences, (c) gave a possible explanation as to how VD managed to experience growth and why the WD Group were unable, (d) it provided social validation to give a better understanding about procedures during and outcomes following an intervention, and (e) it highlighted the importance of disclosure in a sport injury context.

The main strength was that it was the first study to statistically compare the experiences of written and verbal disclosure in a sport injury context (Study 3a), and socially validate the procedures and outcomes (Study 3b). Only a few studies have directly compared the effects of writing and talking. Both Murray and Segal (1994), and Lyubomirsky, Sousa, and Dickerhoof (2006) found that spoken and written expression to be equally effective in reducing distress and more effective than control. In comparison Esterling et al. (1994) found that when disclosing about stress talking was more beneficial than writing and the control condition. In particular, those in who talked were found to be higher in cognitive change, self-esteem improvements, and adaptive coping strategies Aside from these few studies, however, comparisons of private written versus spoken disclosure have not been published. Further research is needed to compare the different types of disclosure. Another strength of the current studies are that the findings both support and extend those studies which have found positive outcomes following disclosure (written and verbal) (e.g., Frattaorli, 2006; Lyubomirsky, Sousa, & Dickerhoof, 2006, Gordon & Wallman, 2009; Mankad & Gordon, 2010). A limitation to the current study is that although both studies demonstrate how growth can be facilitated in those lower in hardiness, they could only examine psychological growth, not physiological or behavioral. Future

researchers interested in examining physiological and behavioral growth will need to adopt other methods, such as behavioral checklists, peer-observations, and/or physiological indicators (e.g., Vo2 Max, Wingate test). This line of research will be more robust using longitudinal pre-and post-injury assessments.

From an applied perspective, this study presents a number of implications. Indeed, injured athletes should verbally disclose their emotions following their return-to-sport. This verbal disclosure should be over at least four weeks. Those athletes would prefer written disclosure may need to disclose over a longer time period to reap the benefits; how long enough is, is for future researchers to determine. Practitioners working with injured athletes are likely to also have an important role in identifying those athletes low in resilience, encouraging them to self-disclose in private, helping them to work through the restructuring process, and identifying how the outcomes obtained will be of value to their sporting performance, well-being and/or risk of injury. Considering the potential rewards, this is a cost-effective exercise that could easily be encouraged and implemented at rehabilitation clinics, sporting clubs, and national governing bodies.

Chapter 5: General Discussion and Conclusion

Introduction

The purpose of this final chapter is to present the findings and implications of this body of research. The chapter is comprised of six sections: (a) a summary of the aims and key findings of each of the three studies; (b) a discussion of the theoretical, empirical and applied impact that derived from this thesis; (c) the resultant practical implications from the current research; (d) the strengths and limitations of the thesis; (e) future research directions; and (f) a conclusion of the thesis.

Summary of Studies

The main aim of this thesis was to examine hardiness and perceived SRG with athletes who had recently returned to sport following a sporting injury. Previous research has either examined the effect of hardiness on injured athletes' responses (e.g., Chung, 2012; Madrigal & Gill, 2014; Wadey, et al., 2012a, 2012b), or have examined the dimensions of SRG following injury (e.g., Bianco, Malo, & Orlick, 1999; Ford & Gordon, 1999; Hurley, Moran, & Guerin, 2007; Podlog & Eklund, 2006, 2009; Podlog, Wadey, Stark, Lochbaum, Hannon, & Newton, 2013; San Jose, 2003; Smith & Sparkes, 2005; Tracey, 2011; Wadey, Clark, Podlog, & McCullough, 2013). No studies have been conducted to examine the relationship between hardiness and SRG. This omission is surprising given that hardiness is conceptualized to transform stress into an opportunity for growth and development (Maddi et al., 2011). This program of research, therefore, aimed to explore the relationship between hardiness and perceived SRG (Study 1); explain in greater depth *how* injured athletes high in hardiness are able to promote SRG, and explore *why* their low hardiness counterparts are unable to foster such perceived benefits (Study 2); and evaluate an intervention to promote SRG in athletes low in resilience (Study 3a and 3b). The following subsections provide an overview of each of the studies within this thesis.

Study 1: Examining hardiness and perceived stress-related growth in a sport injury context. The purpose of Study 1 was to examine the relationship between hardiness and perceived stress-related growth (SRG) following a sporting injury and whether coping mediated this relationship. This study consisted of 206 previously injured athletes (148 male, 58 female, M_{age} = 22.2 years) who had recently returned to sport completing three questionnaires: Dispositional Resilience Scale, Stress-Related Growth Scale, and Brief COPE. Data were analyzed using Pearson product-moment correlations and Preacher's and Hayes's (2008) bootstrapping procedure. Findings revealed a significant positive relationship between hardiness and perceived SRG (r = .36; $p < .05$). Those higher in hardiness were found to experience more growth than those lower in hardiness. Emotional support and positive reframing were found to mediate this relationship. Those individuals high in hardiness who had a supportive social environment (i.e., emotional support) that allowed them to positively reappraise and accommodate the new stress-related information experienced SRG.

Study 2: Examining hardiness, coping and perceived growth following sporting injury. Study 2 was a qualitative follow-up to Study 1 to enhance the interpretability and meaningfulness of the findings. Specifically, this study aimed to explain in-depth *how* previously injured athletes high in hardiness promoted SRG, and *why* athletes low in hardiness were less likely to derive such perceived benefits. This study was underpinned by a post-positivist paradigm, whereby 20 participants (M_{age} = 23.7; SD = 6.35 years) were theoretically sampled into high (N =10) and low (N =10) hardiness groups from Study 1. Semi-structured interviews were used and were analyzed and displayed using composite sequence analysis. Findings revealed that those athletes high in hardiness were able to experience SRG because they disclosed their emotions to their support network, which not only lowered negative

affect but also promoted a positive psychological state. This positive psychological state promoted a challenge mindset and mobilized the participants' time and effort into their resources to promote SRG. These findings supported Fredrickson's (1998) broaden-and-build-theory of positive emotions to the context of sport injury. With regard to the athletes low in hardiness, they were unable to promote SRG because they had no emotional outlet, which led to a number of short- and long-term suboptimal outcomes such as emotional outbursts, poor performance and re-injury. Taken together, by increasing the interpretability and meaningfulness of the findings that emerged from Study 1, Study 2 demonstrated the importance of disclosing one's emotions to encourage a desirable mindset that will promote SRG.

Study 3a and Study 3b. Can emotional disclosure promote growth following sport injury? Study 3a aimed to examine the efficacy of a four-week emotional disclosure intervention with injured athletes low in resilience during their return to competitive sport. The intervention consistent of three groups: a written-disclosure group (N = 15), verbal-disclosure group (N = 15), and the control Group (N = 15). Data were analyzed using a mixed-design (Group x Time) ANOVA and MANOVA. Findings revealed a significant difference between the VD Group and C Group for SRG, but no significant difference between the WD Group and C Group. The VD Group reported more SRG than the C Group. A significant difference was also found between Sessions 1-4 for positive emotions, negative emotions, and cognitive processing. Specifically, positive emotions and cognitive processing increased, whereas negative emotions decreased. As suggested by Frattaroli (2006), cognitive processing allows one to make sense of an event, gain insight about a trauma, and organize and integrate an upsetting experience into one's self-schema.

The aim of this Study 3b, therefore, was to understand the participants' post-intervention appraisal of the intervention protocol and outcomes. Thirty athletes from Study 3a were purposefully sampled and matched across three intervention groups: WD Group (N = 10), VD Group (N =10), and C Group (N = 10). The mean age of the participants was 23.3 years (SD = 5.2). Semi-structured interviews were used and analyzed using thematic analysis. Findings revealed 24 emergent themes across the groups. In terms of social validation of procedures, both the VD and the WD Groups found writing and talking to be cathartic. Those in the VD Group were able to re-organize their thoughts leading to a coherent story, whereas those in the WD Group reported that they were 'stopping and starting' throughout the sessions and never managed to fully disclose their thoughts and feelings. In terms of social validation of outcomes, those in the VD reported experiencing growth outcomes (i.e., changes in perception of themselves, others, and their lives), whereas those in the WD Group reported that they were still working through their injury experience. This study significantly extended previous research by providing a better understanding about procedures during and outcomes following an intervention (Foster & Mash, 1999). These findings have important implications for injured athletes, and practitioners who work with injured athletes.

Theoretical, Empirical and Applied Impact

This section highlights how this program of research has made a significant contribution to theory, research, and applied practice. This section is divided into three subsections. The first subsection, *Theoretical Impact*, describes how the studies within this thesis have supported and extended Wiese-Bjornstal et al.'s (1998) integrated model of responses to sport injury. The second subsection, *Empirical Impact*, illustrated how these studies have extended previous research examining

hardiness or SRG. The final subsection, *Applied Impact*, reviews that impact these studies have for practitioners working with injured athletes.

Theoretical impact. A number of theories and models were supported and extended throughout this thesis. In particular, Wiese-Bjornstal et al.'s (1998) integrated model of psychological response to sport injury. A number of the central tenants of this model were supported:

- Personal (hardiness and coping) and situational variables (social support) affect recovery outcomes from sporting injury (Study 1)
- Personal variables (hardiness) and situational factors (social support) affect psychological, emotional and behavioral responses to injury (Study 2 and Study 3)
- Psychological, emotional and behavioral affect psychological and psychological recovery outcomes from sporting injury (Study 2 and Study 3)
- Cognitive appraisal can have an influence on both behavioral and emotional responses leading to a higher level of functioning (i.e., growth) (Study 2 and Study 3)

In addition, this thesis also extended Wiese-Bjornstal et al.'s (1998) integrated model in a number of ways (see figure 10). First, the integrated model is a model and therefore it does not explain how injured athletes are able to experience SRG. This thesis suggests two theories that may help to explain the underlying mechanisms: (a) Organismic Valuing Theory (Joseph & Linley, 2005) and (b) broaden-and-build-theory of positive emotions (Fredrickson, 2013). In terms of the OVT, this theory explains that if one's environment is supportive of their needs, their stress-related information will be accommodated in a positive direction. Overall, the theory posits three outcomes that result from the way the information is processed: (a) assimilation,

leading to a pre-stressor baseline; (b) negative accommodation, leading to distress; and (c) positive accommodation, leading to perceived SRG. In regard to the findings from Study 1, it could have been suggested that the athletes higher in hardiness may have positively reframed their injury by mobilizing their support network, which in turn lowered their negative emotions, enabling them to positively accommodate their injury and experience SRG. With regard to Frederickson's (1998) broaden-and-build theory of positive emotions, findings from Study 2 and Study 3 supported this theory. This theory suggests that positive emotions enable one to 'broaden' their momentary thought-action repertoire, and 'build' their resources (i.e., experience growth). For example, the positive emotion of gratitude is suggested to create the urge to be pro-social, and consider ways to be kind to others (i.e., thought-action repertoire) and thereby expand one's social bonds (i.e., durable resource). Taken together, future research should examine further how these theories could be integrated with Weise-Bjornstal et al.'s (1998) integrated model.

Finally, this thesis also extends Weise Bjornstal's integrated model in terms of the recovery outcomes it considers. At present, the model only considers the physical and psychological outcomes associated with injury and its rehabilitation. Study 2 highlighted that not only did participants experience physiological and psychological changes but also social and behavioral changes. These changes included making time to go and see friends and family, taking training more seriously, and warming up and cooling down every session. As well as this, these recovery outcomes were found to work in a dynamic fashion, whereby each component works with one another. For example, one participant mentioned that they learned to no longer take their health for granted (psychological), meaning they warm up and cool down in every session (behavioral) and therefore means they have experienced less 'niggles' and have not

been injured since (physiological). Future research should aim to provide a more fine-grained examination of recovery outcomes following injury and how they interact with one another.

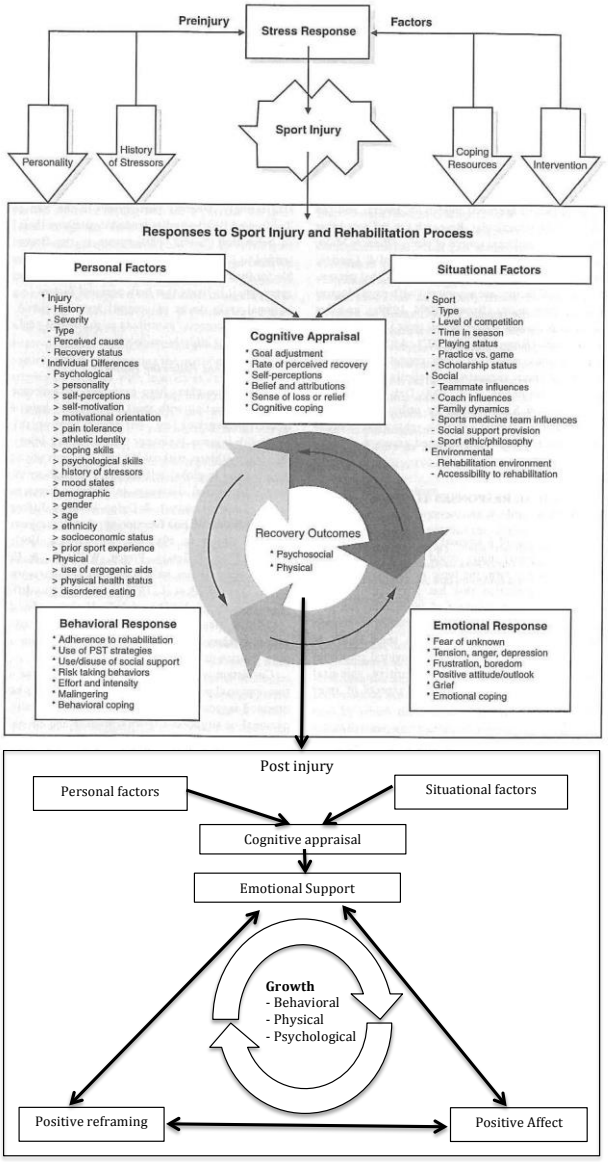

Figure 10. Extended version of the integrated model of response to sport injury (Weise- Bjronstal et al., 1998)

Empirical impact. This thesis has not only supported and refined previous research, but has also extended it in a number of ways. First, two lines of research were integrated which have examined hardiness (Chung, 2012; Madrigal & Gill, 2014; Wadey, et al., 2012a, 2012b) or SRG following injury (e.g., Bianco, Malo, & Orlick, 1999; Ford & Gordon, 1999; Hurley, Moran, & Guerin, 2007; Podlog & Eklund, 2006, 2009). Second, Study 1 extended the aforementioned research by directly examining the relationship between hardiness and SRG and the coping strategies that mediate this relationship finding positive reframing and emotional support to mediate the relationship. Third, Study 2 not only explained how those high in hardiness are able to experience SRG but also why those low in hardiness were unable to derive such benefits. Findings from this study not only supported previous hardiness research (e.g., Maddi, 2005) but also supported and extended research within the growth (e.g., Fredrickson, 1998) and sport injury literature (e.g., Mankad et al., 2009a). Forth, Study 3 supported disclosure research within in a sporting and non-sporting context by not only comparing written and verbal disclosure but it also included a control group (e.g., Mankad et al., 2009b; Mankad & Gordon, 2010; Murray & Segal, 1994). Fifth, it extended the sport injury literature as no studies have compared verbal and written disclosure following a sport injury. Finally, the intervention extended previous research by using social validation to examine the perception of the intervention by the athletes (Mankad et al., 2009b; Mankad & Gordon, 2010).

Applied impact. In terms of practical application, the findings emphasize that practitioners who work with injured athletes may not only have an important role in preventing and/or repairing the negative consequences of injury, but also in terms of enabling them to experience SRG. Furthermore, practitioners should be aware that

certain athletes are less likely to experience SRG than others and therefore may require greater assistance to meet this outcome. Findings from Study 1 demonstrate that practitioners need to challenge injured athletes to (re)appraise the significance of their injury in more adaptive ways, raise their awareness of their social support networks, and encourage them to mobilize their support. They should also work with athletes' social support networks to provide them with the skills and strategies to create an ideal environment for injured athletes to disclose their emotions to enable them to positively reframe their injury and optimize the likelihood of experiencing growth.

Study 2 highlighted the importance of meeting injured athletes' psychological needs. On the one hand, the athletes low in hardiness do not want to disclose their emotions because of the potential adverse consequences it may have (e.g., seen as 'weak' by their peers), yet on the other hand by keeping their emotions to themselves it is having a negative effect on their physical and psychological recovery. It could be recommended therefore, that sporting clubs aim to challenge and change their culture to encourage disclosure of emotions, that support providers (sporting and non-sporting) are taught the communication strategies to foster effective exchanges that challenge athletes' beliefs, and/or we as a profession also explore other methods of enabling athletes to disclose their emotions (e.g., written disclosure, art therapy, music therapy).

Study 3 emphasized that those who work with injured athletes may not only have an important role in preventing and/or repairing the negative consequences of injury, but also in terms of enabling them to return back above pre-injury level. Study 3 demonstrated how private verbal disclosure could be used with athletes who are less likely (i.e., low in hardiness) to disclose to their social support network and therefore

less likely experience growth. Researchers have expressed that is still unclear as to how long it takes for individuals to experience growth (Frattaroli, 2006). Based on findings from Study 3 it would be recommended that those in the VD Group need at least 4 weeks, where as those in the WD Group may need longer. This method of disclosure would provide injured athletes an opportunity to disclose, confront their emotions, re-organize their thoughts, and in turn not only enable them to experience SRG but also raise their awareness of the importance of disclosure. This study also provided valuable insight into the timing of when disclosure should begin. Study 3 was conducted once all athletes had returned to competitive sport. Conducting the intervention at this phase of their injury allowed them time to think and learn from their experiences.

Future Research

As a result of this program of research, a number of recommendations are considered salient for future research. The first avenue for future research is to replicate the three studies in this thesis, which will help to further substantiate the findings. This could be done using the same methodologies and methods, as well as more rigorous methodologies and diverse methods. For example, research should extend Study 1 by using a prospective pre-to-post injury design, with a matched control group of non-injured athletes. This design would help to substantiate the cause-and-effect relationship between hardiness and SRG, as well as the temporal nature of SRG. In terms of the methods used, future researchers could not only use the self-report measures used in this thesis, but also physiological and behavioral indicators to assess the dimensions of growth prior to and following injury (e.g., peer-observation, Vo2 max, Wingate test). As well as using different measurement instruments, future research should also seek to improve the self-report measures used

in this thesis. Future research should aim to development a context- specific measure of SRG, which would enable researchers to more effectively capture the dimensions of SRG reported by injured athletes. Although the SRGS was developed with collegiate students, there might be subtle differences with injured athletes; therefore, future researchers need to develop a valid and reliable measure of SRG following sport injury, which can be used by academics and practitioners.

Aside from the methodologies and methods, another challenge for future researchers is the conceptualization of SRG itself. Indeed, Wadey, Clark, Podlog, and McCullough (2012) suggested that researchers need to take a number of considerations when deciding which type of terminology to use. They suggested that researchers should first consider the event or condition under examination and/or the individual's cognitive-evaluative reactions to it. This information will help to distinguish events or conditions that are considered stressful from those that are traumatic. Park (2004) reported that the term posttraumatic growth should be reserved for those individuals who have truly suffered traumatic experiences (i.e., severe events or conditions involving perceived threat to life or bodily integrity). For those events or conditions that have not reached this level of trauma, other terms such as stress-related growth, perceived benefits or benefit finding. However, clearer guidelines need to be set out of the type of terminology to be used.

Finally, future researchers also need to extend the studies within this thesis, and there are a number of ways they can do this. The questions of imminent concern are: What is the benefit of SRG to injured athletes' performance and well-being upon their return to sport? How do the dimensions of SRG interact over time? Do the dimensions of SRG fluctuate over time? Does SRG require maintenance? Do athletes need strategies in place to remind them of the SRG they have experienced? Do

athletes apply the SRG they have experienced to subsequent injuries? What other stressors can athletes generated SRG from? Is the amount of SRG experienced influenced by cultural scripts? What is the down-side of SRG? Finally, future research needs to also consider the broad range of personal and situational variables that may influence whether an injured athlete experiences SRG. Answers to these questions will help athletes to transform the stressful events they experience into opportunities for growth and development.

Strengths and Limitations

As with all research, each study had its strengths and weaknesses. Study 1 used a cross-sectional design. Although such designs are helpful in identifying potential causal associations, experimental designs are needed to provide causal associations. Study 2 was retrospective in design. Prospective, longitudinal pre-to-post injury studies would also be more desirable to better understand the temporal nature of growth. Study 3 only assesses one phase of recovery. This therefore means that it is still unknown whether this intervention would have been better conducted during the injury onset and/or rehabilitation phases.

Despite the aforementioned limitations, this program of research has a number of strengths. The main strength of Study 1 was that it was the first study to explore perceived SRG in a sport injury context using a quantitative design, which provides a more generalizable set of findings than previous qualitative findings. Another strength of Study 1 was that it had a large sample size, and composition with regard to the timing and severity of injury. Study 1 also managed to observe not only whom is more likely to experience growth (i.e., those higher in hardiness) but also how (i.e., using emotional support and positive reframing). These findings, therefore, have important theoretical and applied implications. Study 2 provided an in-depth

understanding of the mechanisms used to facilitate growth. Not only did it help to understand how those higher in hardiness were able to facilitate perceived SRG but also why those lower in hardiness were unable to derive such growth. Study 3 managed to support and extend those studies which have examined both written and verbal disclosure finding positive health benefits within both a sport and non-sport context (Frattaorli, 2006; Lyubomirsky, Sousa, and Dickerhoof , 2006, Mankad and Gordon, 2010; Mankad, Gordon & Wallman, 2009; Hudson and & Day; 2012). A final strength of this thesis was that it also addressed a number of future recommendations and suggestions that have been identified by previous researchers:

- Udry et al. (1998) suggested that research should identify the personal and situational factors that can affect growth and explain the mechanisms through which they operate (Study 1, 2 & 3).
- Grove and Bianco (1999) recommended future research should examine the effect of hardiness on athletes' responses to injury (Study 1 & 2)
- Galli and Reel (2012) suggested that one way to help facilitate the growth process may be to ask athletes to reflect on adversities that they have faced in the past (Study 1, 2, & 3)
- Galli and Reel (2012) suggested that journaling could be an effective method for helping athletes make sense of and grow from adversity (Study 3)
- Wadey et al. (2011) recommended that future research should examine positive processes and outcomes following injury (Study 1, 2, & 3)
- Mankad et al. (2010) suggested that research should explore athletes' opinions on the writing program (Study 3)

Conclusion

The main purpose of this thesis was to examine the relationship between the personality trait of hardiness and SRG following sport injury. Findings from this program of research have demonstrated that athletes higher in hardiness are more likely to experience SRG following a sport injury than those lower in hardiness. Those high in hardiness possess three resilient attitudes (i.e., commitment, control and challenge) and are able to utilize emotion-focused coping strategies (i.e., positive reframing and emotional support) to facilitate SRG. Findings from this body of research also highlighted that SRG can be facilitated in individuals who are low in hardiness through the use of self-disclosure. Through the use of verbal disclosure individuals are able to re-organize their thoughts, develop an understanding of their injury and in turn experience positive outcomes that are valued by them (i.e., changes in perception of themselves, others and their life). Taken together, this thesis has fulfilled its purpose, and has important implications for those who work with injured athletes to enable them to return back above their pre-injury level of functioning.

References

Abgarov, A., Jeffery-Tosoni, S., Baker, J., & Fraser-Thomas, J. (2012). Understanding social support throughout the injury process among interuniversity swimmers, *Journal of Intercollegiate Sport, 5*, 213–229.

Abraido-Lanza, A. F., Guier, C., & Colon, R. (1998). Psychological thriving among Latinas with chronic illness. *Journal of Social Issues, 54*, 405–424.

Affleck, G., & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64*, 899-922.

Albinson, C. B., & Petrie, T. A. (2003). Cognitive appraisals, stress and coping: Preinjury and postinjury factors influencing psychological adjustment to sport injury. *Journal of Sport Rehabilitation, 12*, 306-322.

Aldwin, C. M. (1994). *Stress, Coping, and Development*. New York: Guilford Press.

Alfred, G. C., Hammer, J. H., & Good, G. E. (2014). Male student veterans: Hardiness, psychological well-being, and masculine norms. *Psychology of Men & Masculinity, 15*, 95–99.

Allen, M. S., Greenlees, I., & Jones, M. (2011). An investigation of the five-factor model of personality and coping behaviour in sport. *Journal of Sports Sciences, 29*, 841–850.

Appaneal, R. N., Levine, B. R., Perna, F. M., & Roh, J. L. (2009). Measuring postinjury depression among male and female competitive athletes. *Journal of Sport & Exercise Psychology, 31*, 60–76.

Armeli, S., Gunthert, K. C., & Cohen, L. H. (2001). Stressor appraisals, coping, and post-event outcomes: The dimensionality and antecedents of stress-related growth. *Journal of Social and Clinical Psychology, 20*, 366-395.

Baikie, K. A. (2003). *Rewriting trauma: How and for whom does the writing paradigm work?* Unpublished doctoral dissertation. Macquarie University, Sydney, Australia.

Bartone, P. T., Ursano, R. J., Wright, K. M., & Ingraham, L. H. (1989). The impact of a military air disaster on the health of assistance workers. *The Journal of Nervous and Mental Disease, 177,* 317-328.

Bartone, P. T., Ursano, R. J., Wright, K. M., & Ingraham, L. H. (1989). The impact of a military air disaster on the health of assistance workers. *The Journal of Nervous and Mental Disease, 177,* 317-328.

Bartone, P. T., Hystad, S., Eid, C. J., Medical, N., Corpsft, S., & Brevik, J. I. (2012). Psychological hardiness and coping style as risk / resilience factors for alcohol abuse. *Military Medicine, 177,* 517–525.

Batten, S. V., Follette, V. M., Rasmussen Hall, M. L., & Palm, K. M. (2002). Physical and psychological effects of written disclosure among sexual abuse survivors. *Behavior Therapy, 33,* 107–122.

Bawa, H. S. (2010) Personality hardiness, burnout and sport competition anxiety among athletics and wrestling coaches. *British Journal of Sports Medicine, 44,* 57-58.

Berg, B. L. (2009). *Qualitative Research Methods for the Social Sciences*. Boston: Pearson Education.

Bianco, T. (2001). Social support and recovery from sport injury: Elite skiers share their experiences. *Research Quarterly for Exercise and Sport, 72,* 376-388.

Bianco, T., Malo, S., & Orlick, T. (1999). Sport injury and illness: Elite skiers describe their experiences. *Research Quarterly for Exercise and Sport, 70,* 157-169.

Boelen, P. A. (2010). A sense of "unrealness" about the death of a loved-one: An exploratory study of its role in emotional complications among bereaved individuals. *Applied Cognitive Psychology, 24,* 238-251.

Brewer, B. (2010). The role of psychological factors in sport injury rehabilitation outcomes. *International Review of Sport and Exercise Psychology, 3*, 40–61.

Brewer, B. W. (1993). Self-identity and specific vulnerability to depressed mood. *Journal of Personality, 61,* 343-364.

Brewer, B. W. (2007). Psychology of sport injury rehabilitation. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of sport psychology* (pp. 404- 424). Hoboken, NJ: Wiley.

Brewer, B. W., Andersen, M. B., & Van Raalte, J. L. (2002). Psychological aspects of sport injury rehabilitation: toward a biopsychosocial approach. In D. L. Mostofsky & L. D. Zaichkowsky (Eds.), *Medical and psychological aspects of sport and exercise* (pp. 41-54). Morgantown, WV: Fitness Information Technology.

Brewer, B. W., Linder, D. E., & Phelps, C. M. (1995). Situational correlates of emotional adjustment to athletic injury. *Clinical Journal of Sport Medicine, 5,* 241-245

Brewer, B.W., Cornelius, A. E., Stephan, Y., & Van Raalte, J. L. (2010). Self-protective changes in athletic identity following anterior cruciate ligament reconstruction. *Psychology of Sport and Exercise, 11,* 1–5.

Burke, S. M., & Sabiston, C. M. (2012). Fostering growth in the survivorship experience: Investigating breast cancer survivors' lived experiences scaling Mt. Kilimanjaro from a posttraumatic growth perspective. *The Qualitative Report, 17,* 1-19.

Carson, F., & Polman, R. C. J. (2008). ACL injury rehabilitation: A psychological case-study of a professional rugby union player. *Journal of Clinical Sport Psychology, 2,* 71-90.

Carson, F., & Polman, R. C. J. (2010). The facilitative nature of avoidance coping within sports injury rehabilitation. *Scandinavian Journal of Medicine and Science in Sports, 20,* 235–240.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4,* 92-100.

Carver, C. S. (1998). Resilience and thriving: Issues, models, and linkages. *Journal of Social Issues, 54,* 245-26.

Cassidy, T. (2000). Stress, healthiness and health behaviours: An exploration of the role of life events, daily hassles, cognitive appraisal and the coping process. *Counselling Psychology Quarterly, 13,* 293–311.

Chan, C. S., & Grossman, H. Y. (1988). Psychological effects of running loss on consistent runners. *Perceptual and Motor Skills, 66,* 875-993.

Chung, Y. (2012). Psychological correlates of athletic injuries: Hardiness, life Stress, and cognitive appraisal. *International Journal of Applied Sports Sciences, 24,* 89–98.

Clement, D., Arvinen-Barrow, M., & Fetty, T. (2015). Psychosocial responses during different phases of sport-injury rehabilitation: A qualitative study. *Journal of Athletic Training, 50,* 95–104.

Cohen, L. H., Cimbolic, K., Armeli, S. R., & Hettler, T. R. (2010). Quantitative Assessment of Thriving. *Journal of Social Issues, 54,* 323–335.

Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis

An empirical review In A. Baum, J. E. Singer, & S. E. Taylor (Eds.), *Handbook of psychology and health* (pp. 253-267) Hillsdale, NJ: Erlbaum.

Connaughton, D., Wadey, R., Hanton, S., & Jones, G. (2008). The development and maintenance of mental toughness: Perceptions of elite performers. *Journal of Sports Sciences, 26,* 83-95.

Contrada, Richard. J. (1989). Type A behavior, personality hardiness, and cardiovascular responses to stress. *Journal of Personality and Social Psychology, 57,* 895-90.

Crawford, J. J., Gayman, A. M., & Tracey, J. (2014). An examination of post-traumatic growth in Canadian and American parasport athletes with acquired spinal cord injury. *Psychology of Sport and Exercise, 15,* 399-406.

Culver, D., Gilbert, W., & Sparkes, A. (2012). Qualitative research in sport psychology journals: The next decade 2000-2009 and beyond. *The Sport Psychologist, 26,* 261-281.

Cupal, D. D. (1998). Psychological interventions in sport injury prevention and rehabilitation. *Journal of Applied Sport Psychology, 10,* 103-123.

Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2012). Prolonged grief symptoms and growth in the first 2 years of bereavement: Evidence for a nonlinear association. *Traumatology, 18,* 65-71.

Currier, J. M., Mallot, J., Martinez, T. E., Sandy, C., & Neimeyer, R. A. (2012). Bereavement, religion, and posttraumatic growth: A matched control group investigation. *Psychology of Religion and Spirituality, 5,* 69–77.

Daly, J. M., Brewer, B. W., Van Raalte, J. L., Petitpas, A. J., & Sklar, J. H. (1995). Cognitive appraisal, emotional adjustment, and adherence to rehabilitation following knee surgery. *Journal of Sport Rehabilitation, 4,* 23-30.

Dawson, K. S., Joscelyne, A., Meijer, C., Tampubolon, A., Steel, Z., & Bryant, R. A. (2014). Predictors of chronic posttraumatic response in Muslim children following natural disaster. *Psychological Trauma: Theory, Research, Practice, and Policy*, *6*, 580–587.

Day, M. C. (2013). The role of initial physical activity experiences in promoting posttraumatic growth in Paralympic athletes with an acquired disability. *Disability and Rehabilitation, 35*, 2064-2073.

Dutton, M. A., & Greene, R. (2010). Resilience and crime victimization. *Journal of Traumatic Stress*, *23*, 215–222.

Epstein, E. M., Sloan, D. M., & Marx, B. P. (2005). Getting to the heart of the matter: Written disclosure, gender, and heart rate. *Psychosomatic Medicine, 67,* 413–419.

Eschleman, K. J., Bowling, N. A., & Alarcon, G. M. (2010). A meta-analytic examination of hardiness. *International Journal of Stress Management*, *17,* 277-307.

Escolas, S. M., Pitts, B. L., Safer, M. A., & Bartone, P. T. (2013). The protective value of hardiness on military posttraumatic stress symptoms. *Military Psychology, 25*, 116–123.

Esterling, B. A., Antoni, M.H., Fletcher, M. A., Margulies, S., & Schneiderman, N. (1994). Emotional disclosure through writing or speaking modulates latent Epstein-Barr virus antibody titers. *Journal of Consulting and Clinical Psychology, 62*, 130–140.

Evans, L., & Hardy, L. (2002). Injury rehabilitation: A goal-setting intervention study. *Research Quarterly for Exercise and Sport, 73*, 310-319.

Evans, L., & Hardy, L. (1995). Sport injury and grief responses: A review. *Journal of Sport & Exercise Psychology*, *17,* 227–245.

Evans, L., & Hardy, L. (2002a). Injury rehabilitation: A goal-setting intervention study. *Research Quarterly for Exercise and Sport, 73*, 310-319.

Evans, L., & Hardy, L. (2002b). Injury rehabilitation: A qualitative follow-up study. *Research Quarterly for Exercise and Sport, 73,* 320-329.

Evans, L., Hardy, L., & Fleming, S. (2000). Intervention strategies with injured athletes: An action research study. *Sport Psychologist*, *14*, 188-206

Evans, L., Mitchell, I., & Jones, S. (2006). Psychological responses to sport injury: A review of current research. In S. Hanton & S. D. Mellalieu (Eds.), *Literature reviews in sport psychology* (pp. 289-319). New York: Nova Science.

Evans, L., Wadey, R., Hanton, S., & Mitchell, I. (2012). Stressors experienced by injured athletes. *Journal of Sports Sciences, 30*, 917–927.

Faulkner, G., & Sparkes, A. (1999). Exercise as therapy for schizophrenia: An ethnographic study. *Journal of Sport & Exercise Psychology, 21*, 52-69.

Florian, V., Mikulincer, M., & Taubman, O. (1995). Does hardiness contribute to mental health during a stressful real-life situation? The roles of appraisal and coping. *Journal of Personality and Social Psychology, 68*, 687–695.

Ford, I. W., & Gordon, S. (1999). Coping with sport injury: Resource loss and the role of social support. *Journal of Personality and Interpersonal Loss*, *4*, 243-256.

Ford, I. W., Eklund, R. C., & Gordon, S. (2000). An examination of psychosocial variables moderating the relationship between life stress and injury time-loss among athletes of a high standard. *Journal of Sport Sciences, 18*, 301-312.

Foster, S., & Mash, E. (1999). Assessing social validity in clinical treatment research: Issues and procedures. *Journal of Consulting and Clinical Psychology, 67,* 308–319

Francis, M. E., & Pennebaker, J. W. (1992). Putting stress into words: The impact of writing on physiological, absentee, and self-reported emotional well-being measures. *Stress Management, 6,* 280–287.

Francisco, V. T., & Butterfoss, F. D. (2007). Social validation of goals, procedures, and effects in public health. *Health Promotion Practice, 8,* 128–133.

Frattaroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin, 132,* 823–65.

Frazier, P., & Kaler, M. E. (2006). Assessing the validity of self-reported stress-related growth. *Journal of Consulting and Clinical Psychology, 74,* 859-869.

Frazier, P., Conlon, A, & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 69,* 1048–1055.

Frazier, P., Tashiro, T., Berman, M., Steger, M., & Long, J. (2004). Correlates of levels and patterns of positive life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 72,* 19-30.

Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-reported posttraumatic growth reflect genuine positive change? *Psychological Science, 20,* 912-921.

Fredrickson B. L. (1998) What good are positive emotions? *Review of General Psychology. 2,* 300–319.

Frisina, P. G., Borod, J. C., & Lepore, S. J. (2004). A meta-analysis of the effects of written emotional disclosure on the health outcomes in clinical populations. *Journal of Nervous and Mental Disease, 192*, 629– 634.

Funk, S. C., & Houston, B. K. (1987). A critical analysis of the Hardiness Scale's validity and utility. *Journal of Personality and Social Psychology*, *53*, 572–578.

Gall, T. L., Charbonneau., & Florack, C. P. (2011). The relationship between religious/spiritual factors and perceived growth following a diagnosis of breast cancer. *Psychology & Health, 26,* 287-305.

Gallagher, B., & Gardner, F. L. (2007). An examination of the relationship between early maladaptive schemas, coping, and emotional response to athletic injury. *Journal of Clinical Sport Psychology*, *1,* 47–67.

Galli, N., & Reel, J. J. (2012a). 'It was hard, but it was good': A qualitative exploration of stress-related growth in division I intercollegiate athletes. *Qualitative Research in Sport, Exercise and Health*, *4,* 297-319.

Galli, N., & Reel, J. J. (2012b). Can good come from bad? An examination of adversarial growth in Division I NCAA athletes. *Journal of Intercollegiate Sport*, *5*,199-212.

Gayman, A. M., & Crossman, J. (2003). A qualitative analysis of how the timing of the onset of sports injuries influences athlete reactions. *Journal of Sport Behavior, 26*, 255-271.

Gentry, W. D., & Kobasa, S. C. (1984). Social and psychological resources mediating stress- illness relationships in humans. In Gentry, W. D. (Eds.), *Handbook of Behavioral Medicine,* (pp. 87-116). Guilford Press, New York.

Gill, D. L. (2014). Psychological responses of division I female athletes throughout injury recovery: A case study approach. *Journal of Clinical Sport Psychology, 8,* 276–298.

Golby, J., & Sheard, M. (2004). Mental toughness and hardiness at different levels of rugby league. *Personality and Individual Differences, 37,* 933–942.

Gortner, E.-M., Rude, S., Pennebaker, J., (2006). Benefits of expressive writing in lowering rumination and depressive symptoms. *Behavior Therapy 37,* 292–303.

Gould, D., Udry, E., Bridges, D., & Beck, L. (1997a). Stress sources encountered when rehabilitating from season-ending ski injuries. *The Sport Psychologist, 11,* 361-378.

Gould, D., Udry, E., Bridges, D., & Beck, L. (1997b). Coping with season-ending injuries. *The Sport Psychologist, 11,* 379-399.

Granito, V. J., Jr. (2001). Athletic injury experience: A qualitative focus group approach. *Journal of Sport Behavior, 24,* 63-82.

Graybeal, A., Seagal, J. D., & Pennebaker, J. W. (2002). The role of story-making in disclosure writing: The psychometrics of narrative. *Psychology and Health, 17,* 571-581.

Green, L. S., Grant, A. M., & Rynsaardt, J. (2007). Evidence-based life coaching for senior high school students: Building hardiness and hope. *International Coaching Psychology Review, 2,* 24-32.

Green, S. L., & Weinberg, R. S. (2001). Relationships among athletic identity, coping skills, social support, and the psychological impact of injury in recreational participants. *Journal of Applied Sport Psychology, 13,* 40-59.

Grove, J. R., & Bianco, T. (1999). Personality correlates of psychological processes during injury rehabilitation. In D. Pargman (Eds.), *Psychological bases of sport injuries* (pp. 89-110). Morgantown, WV: Fitness Information Technology.

Guglietti, C. L., Rosen, B., Murphy, K. J., Laframboise, S., Dodge, J., Ferguson, S, Katz., J., & Ritvo P. (2010). Prevalence and predictors of post-traumatic stress in women undergoing an ovarian cancer investigation. *Psychological Services, 7,* 266-274.

Gunty, A. L., Frazier, P. A., Tennen, H., Tomich, P., Tashiro, T., & Park, C. (2011). Moderators of the relation between perceived and actual posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy*, *3*, 61–66.

Hanton, S., Evans, L., & Neil, R. (2003). Hardiness and the competitive trait anxiety response. *Anxiety, Stress & Coping*, *16*, 167–184.

Hanton, S., Neil, R., & Evans, L. (2011). Hardiness and anxiety interpretation: An investigation into coping usage and effectiveness. *European Journal of Sport Science*, *13*, 96-104.

Hare, R., Evans, L., & Callow, N. (2008). Imagery use during rehabilitation from injury. A case study of an elite athlete. *The Sport Psychologist, 22,* 405-422.

Harrison, B., & Lyon, E. S. (1993). A note on ethical issues in the use of autobiography in sociological research. *Sociology, 27,* 101-109.

Hefferon, K., Grealy, M., & Mutrie, N. (2008). Post-traumatic growth and life threatening physical illness: A systematic review of the qualitative literature. *British Journal of Health Psychology*, *14*, 343–78.

Hoar, S. D., & Flint, F. (2008). Determinants of help-seeking intentions in the context of athletic injury recovery. *International Journal of Sport and Exercise Psychology, 6*, 157–175.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*, 513–524.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11*, 213-218.

Holt, N, L., & Hog, J. M. (2002). Perceptions of stress and coping during preparations for the 1999 women's soccer world cup finals. *The Sport Psychologist, 16*, 251–271.

Howarth, W. L. (1974). Some principles of autobiography. *New Literary History, 5*, 363-381

Howells, K., & Fletcher, D. (2015). Sink or swim : Adversity- and growth-related experiences in Olympic swimming champions. *Psychology of Sport & Exercise, 16*, 37–48.

Hudson, J., & Day, M. (2012). Athletes' experiences of expressive writing about sports stressors. *Psychology of Sport and Exercise, 13*, 798-806.

Hull, J. G., Van Treuren, R. R., & Virnelli, S. (1987). Hardiness and health: A critique and alternative approach. *Journal of Personality and Social Psychology, 53*, 518-530.

Hurley, O., Moran, A., & Guerin, S. (2007). Exploring athletes' experience of their injuries: A qualitative investigation. *Sport and Exercise Psychology Review, 3*, 14-22.

Janoff-Bulman, R. (1992). *Shattered assumptions.* New York: The Free Press.

Johnston, L. H., & Carroll, D. (1998). The context of emotional responses to athletic injury: A qualitative analysis. *Journal of Sport Rehabilitation, 7,* 206- 220.

Joseph, S., & Linley, P, A. (2006). Growth following adversity: Theoretical perspectives and implications for clinical practice. *Clinical Psychology Review, 26*, 1041-53.

Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology, 9*, 262-280.

Joseph, S., & Linley, P. A. (2006). *Positive therapy: A meta-theory for positive psychological practice.* New York: Routledge.

Joseph, S., & Linley, P. A. (2008). Psychological assessment of growth following adversity: A review. In S. Joseph & P. A. Linley (Eds.), *Trauma, recovery, and growth: Positive psychological perspectives on posttraumatic stress* (pp. 21–38). Hoboken, NJ: Wiley.

Joseph, S., Murphy, D., & Regel, S. (2012). An affective-cognitive processing model of post-traumatic growth. *Clinical Psychology & Psychotherapy*, *19*, 316–25.

Joseph, S., Williams, R., & Yule, W. (1993). Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. *Journal of Traumatic Stress, 6*, 271-279.

Kazdin, A. E. (1977). Assessing the clinical or applied importance of behavior change through social validation. *Behavior Modification*, *1*, 427-452.

Khoshaba, D. M., & Maddi, S. R. (2001). *HardiTraining.* Newport Beach, CA: Hardiness Institute.

Khoshaba, D. M., & Maddi, S. R. (1999). Early experiences in hardiness development. *Consulting Psychology Journal: Practice and Research, 51*,

106-116.

Kubler-Ross, E. (1969). *On death and dying.* London: Tavistock. Kubler-Ross,

King, L. A., King, W., Fairbank, J. A., Keane, T. M., & Adams, G A. (1998). Resilience–recovery factors in post-traumatic stress disorder among female and male Vietnam veterans: Hardiness, postwar social support, and additional stressful life events. *Journal of Personality and Social Psychology, 74,* 420-434.

Klein, K., & Boals, A. (2001). Expressive writing can increase working memory capacity. *Journal of Experimental Psychology: General, 130,* 520–533.

Kobasa, S, C., Maddi, R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42,* 168-177.

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37,* 1-11.

Kobasa, S. C., & Puccetti, M. C. (1983). Personality and social resources in stress resistance. *Journal of Personality and Social Psychology, 45,* 839–850.

Kvale, S., & Brinkman, S. (2009). *Interviews: Learning the craft of qualitative research interviewing.* Thousand Oaks: Sage.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.

Leddy, M. H., Lambert, M. J., & Oges, B. M. (1994). Psychological consequences of athletic injury among high-level competitors. *Research Quarterly for Exercise and Sport, 65,* 347-354.

Levy, A. R., Polman, R. C. J., Nicholls, A. R., & Marchant, D. C. (2009). Sport injury rehabilitation adherence: Perspectives of recreational athletes. *International Journal of Sport and Exercise Psychology, 7*, 212–229.

Levy, A. R., Polman, C. J., Clough, P., & McNaughton, L. R. (2006). Adherence to sport injury rehabilitation programmes: A conceptual review. *Research in Sports Medicine: An International Journal, 14*, 149-162.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 97-128). Los Angeles: Sage.

Linley, A., & Joseph, S. (2004). Positive changes following trauma and adversity: A review. *Journal of Traumatic Stress, 17,* 11–21.

Low, C. A, Stanton, A. L., Bower, J. E., & Gyllenhammer, L. (2010). A randomized controlled trial of emotionally expressive writing for women with metastatic breast cancer. *Health Psychology, 29*, 460–466.

Lowe, S. R., Manove, E. E., & Rhodes, J. E. (2013). Posttraumatic stress and posttraumatic growth among low-income mothers who survived Hurricane Katrina. *Journal of Consulting and Clinical Psychology, 81,* 877–889.

Lyubomirsky, S., Sousa, L., & Dickerhoof, R. (2006). The costs and benefits of writing, talking, and thinking about life's triumphs and defeats. *Journal of Personality and Social Psychology, 90,* 692-708.

Maddi, S. D. (1997). Personal Views Survey II: A measure of dispositional hardiness. In C. P. Zalaquett & R. J. Woods (Eds.), *Evaluating stress: A book of resources* (pp. 293-310). New York: University Press.

Maddi, S. R. (2002). The story of hardiness: Twenty years of theorizing, research, and practice. *Consulting Psychology Journal: Practice and Research, 54*, 175-185.

Maddi, S. R. (2005). *Resilience at work: How to succeed no matter what life throws at you*. New York, NY: Amacom.

Maddi, S. R. (2006). Hardiness: The courage to grow from stresses. *The Journal of Positive Psychology, 1*, 160-168.

Maddi, S. R., & Khoshaba D. M. (1994). Hardiness and mental health. *Journal of Personality Assessment, 63*, 265- 274.

Maddi, S. R., Harvey, R. H., Khoshaba, D. M., Fazel, M., & Resurreccion, N. (2009). Hardiness facilitates performance in college. *Journal of Positive Psychology, 4*, 566–577.

Maddi, S. R., Kahn, S., & Maddi, L. K. (1998). The effectiveness of hardiness training. *Consulting Psychology Journal, 50,* 78-86.

Maddi, S. R., Khoshaba, D. M., Jensen, K., Carter, E., Lu, J., & Harvey, R. (2002). Hardiness training for high-risk undergraduates. *NACADA Journal, 22,* 45–55.

Maddi, S. R., Khoshaba, D. M., Persico, M., Lu, J., Harvey, R., & Bleecker, F. (2002). The personality construct of hardiness II. Relationships with comprehensive test of personality and psychopathology. *Journal of Research in Personality, 36,* 72–85.

Maddi, S.R. (2004). Hardiness: An operationalization of existential courage. *Journal of Humanistic Psychology, 44,* 279-298.

Maddi, S. R., & Hess, M. (1992). Hardiness and basketball performance. *International Journal of Sports Psychology, 21*, 153-161.

Maddi, S. R., & Kobasa, S. C. *The hardy executive: Health under stress*. Homewood, IL: Dow Jones-Irwin.

Maddi, S. R., Wadhwa, P., & Haier, R. J. (1996). Relationship of hardiness to alcohol and drug use in adolescents. *American Journal of Drug and Alcohol Abuse, 22*, 247-257.

Madrigal, L., & Gall, T. L., Charbonneau, C., & Florack, P. (2011). The relationship between religious/spiritual factors and perceived growth following a diagnosis of breast cancer. *Psychology & Health, 26*, 287–305.

Maercker, A., & Zoellner, T. (2004). The Janus face of self-perceived growth: Toward a two-component model of posttraumatic growth. *Psychological Inquiry*, *15*, 41−48.

Mankad, A., & Gordon, S. (2010). Psycho-linguistic changes in athletes' grief response to injury after written emotional disclosure. *Journal of Sport Rehabilitation, 19*, 328-342.

Mankad, A., Gordon, S., & Wallman, K. (2009a). Psycho-immunological effects of written emotional disclosure during long-term Injury rehabilitation. *Rehabilitation*, *3*, 205–217.

Mankad, A, Gordon, S., & Wallman, K. E. (2009b) Psycholinguistic analysis of emotional disclosure: A case study in sport injury. *Journal of Clinical Sports Psychology*, *3*, 182–196.

Mankad, A., Gordon, S., & Wallman, K. E. (2009c). Perceptions of emotional climate among injured athletes. *Journal of Clinical Sport Psychology*, *3*, 1-14.

Marshall, A., Donovan-Hall, M., & Ryall, S. (2012). An exploration of athletes' views on their adherence to physiotherapy rehabilitation after sport injury. *Journal of Sport Rehabilitation, 21*, 18–25.

Martin, G. L., Vause, T., & Schwartzman, L. (2005). Experimental studies of psychological interventions with athletes in competitions: Why so few? *Behavior Modification, 29,* 616-641.

McCalister, K. T., Dolber, C. L., Webster, J. A., Mallon, M. W., & Steinhardt, M. A. (2006). Hardiness and support at work as predictors of work stress and job satisfaction. *American Journal of Health Promotion, 20,* 183-191.

McCarthy, P. (2011). Positive emotion in sport: Current status and future directions. *International Review of Sport and Exercise Psychology, 4,* 50-69.

McDevitt-Murphy, M. E., Neimeyer, R. a., Burke, L. a., Williams, J. L., & Lawson, K. (2012). The toll of traumatic loss in African Americans bereaved by homicide. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*, 303–311.

McDonald, S. A., & Hardy, C. J. (1990). Affective response patterns of the injured athlete: An exploratory analysis. *The Sport Psychologist, 4,* 261-274.

McDonough, M. H., Sabiston, C. M., & Ullrich-French, S. (2011). The development of social relationships and support in a dragon boating team for breast cancer survivors. *Journal of Sport & Exercise Psychology, 33,* 627-648.

McMillen, J. C., & Cook, C. L. (2003). The positive by-products of spinal cord injury and their correlates. *Rehabilitation Psychology*, *48*, 77–85.

McMillen, J. C., & Fisher, R. H. (1998). The perceived benefit scales: Measuring perceived positive life changes after negative events. *Social Work Research, 22,* 173−187.

Mellalieu, S. D., Hanton, S., & Thomas, O. (2009). The effects of a motivational general-arousal imagery intervention upon preperformance symptoms in male rugby union players. *Psychology of Sport and Exercise, 10,* 175-185.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook.* Thousand Oaks, CA: Sage.

Mitchell, I. D. (2011). Social support and psychological responses in sport-injury rehabilitation. *Sport & Exercise Psychology Review, 7,* 30-44.

Mitchell, I., Evans, L., Rees, T., & Hardy, L. (2014). Stressors, social support, and tests of the buffering hypothesis: effects on psychological responses of injured athletes. *British Journal of Health Psychology, 19,* 486–508.

Moos, R. H., & Schaefer, J. A. (1984). The crisis of physical illness: an overview and conceptual approach. In Moos, R.H. (Eds.), *Coping with Physical Illness, 2: New Perspectives* (pp. 2-35). New York: Plenum Medical Book Co.

Moran, A. P., Matthews, J. J., & Kirby, K. (2011). Whatever happened to the third paradigm? Exploring mixed methods research designs in sport and exercise psychology. *Qualitative Research in Sport, Exercise and Health, 3,* 362- 369.

Morgan, S. (1999). Prison lives: critical issues in reading prisoner autobiography. *The Howard Journal of Criminal Justice, 38,* 328-340.

Murray, E. J., & Segal, D. L. (1994). Emotional processing in vocal and written expression of feelings about traumatic experiences. *Journal of Traumatic Stress, 7,* 189–206.

Neil, R., Hanton, S., & Mellalieu, S. D. (2013). Seeing things in a different light: Assessing the effects of a cognitive-behavioural intervention upon the further appraisals of golfers. *Journal of Applied Sport Psychology, 25,* 106-130.

Nolen-Hoeksema, S., & Davis, C. G. (2004). Theoretical and methodological issues in the assessment and interpretation of posttraumatic growth. *Psychological Inquiry, 15,* 60-64.

Nordin-Bates, S. M., Walker, I. J., Baker, J., Garner, J., Hardy, C., Irvine, S., & Blevins, P. (2011). Injury, imagery, and self-esteem in dance healthy minds in injured bodies? *Journal of Dance Medicine & Science: Official Publication of the International Association for Dance Medicine & Science*, *15*, 76–85.

Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Okun, M. A., Zautra, A. J., & Robinson, S. E. (1988). Hardiness and health among women with rheumatoid arthritis. *Personality and Individual Differences, 9,* 101- 107.

Orme, G. J., & Kehoe, E. J. (2014). Hardiness as a predictor of mental health and well-being of Australian army reservists on and after stability operations. *Military Medicine, 179,* 404-12.

Park C. L., Cohen L. H., & Murch R, L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64,* 71-105.

Park, C. L. (2004). The notion of growth following stressful life experiences: Problems and prospects. *Psychological Inquiry, 15,* 69−76.

Park, C. L. (2009). Overview of theoretical perspectives. In C. L. Park, S. Lechner, M. H. Antoni, & A. Stanton (Eds.), *Positive life change in the context of medical illness: Can the experience of serious illness lead to transformation?* (pp. 11-30). Washington, DC: American Psychological Association.

Park, C. L. (2008). Conceptual and methodological issues. In C. L. Park, S. C. Lechner, M. H. Antoni & A. L. Stanton (Eds.), *Medical issues and positive life change: Can crisis lead to personal transformation?* (pp. 9-11). Washington DC: American Psychological Association.

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 1,* 115−144.

Park, C. L., & Helgeson, V. S. (2006). Introduction to the special section: Growth following highly stressful life events--current status and future directions. *Journal of Consulting and Clinical Psychology, 74,* 791–796.

Park, C. L., & Lechner, S. (2006). Measurement issues in assessing growth following stressful life experiences. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth* (pp. 47–67). Mahwah, NJ: Erlbaum.

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64,* 71−105.

Patton, M. (2002). *Qualitative research and evaluation methods*. Newbury Park, CA: Sage.

Pearson, L., & Jones, G. (1992). Emotional effects of sports injuries: Implications for physiotherapists. *Physiotherapy, 78,* 762-770.

Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95,* 274–281.

Pennebaker, J. W., Colder, M., & Sharp, L. K. (1990). Accelerating the coping process. *Journal of Personality and Social Psychology, 58,* 528– 537.

Pennebaker, J., & Chung, C. (2011). Expressive writing and its links to mental and physical health. In H. S. Friedman (Eds.), *Oxford handbook of health psychology.* New York, NY: Oxford University Press.

Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95,* 274-281.

Podlog, L., & Eklund, R. C. (2006). A longitudinal investigation of competitive athletes' return to sport following serious injury. *Journal of Applied Sport Psychology, 18*, 44-68.

Podlog, L., & Eklund, R. C. (2009). High level athletes' perceptions of success in returning to sport following injury. *Psychology of Sport and Exercise, 10*, 535-544.

Podlog, L., Dimmock, J., & Miller, J. (2011). A review of return to sport concerns following injury rehabilitation: Practitioner strategies for enhancing recovery outcomes. *Physical Therapy in Sport, 12*, 43-48.

Podlog, L., Wadey, R., Stark, A., Lochbaum, M., Hannon, J. C., & Newton, M. (2013). An adolescent perspective on injury recovery and return to sport experiences. *Psychology of Sport and Exercise, 14*, 437- 446.

Prati, G., & Pietrantoni, L. (2009). Optimism, Social Support, and Coping Strategies As Factors Contributing to Posttraumatic Growth: A Meta-Analysis. *Journal of Loss and Trauma, 14*, 364–388.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891.

Ptacek, J. T., Smith, R. E., Espe. K., & Rafferty, B. (1994). Limited correspondence between daily coping reports and retrospective coping recall. *Psychological Assessment, 6*, 41-49.

Quackenbush, N. and Crossman, J. (1994). Injured Athletes: a study of emotional responses. *Journal of Sport Behaviour, 17*, 178-189.

Quinn, A. M., & Fallon, B. J. (1999). The changes in psychological characteristics and reactions of elite athletes from injury onset until full recovery. *Journal of Applied Sport Psychology, 11*, 210-229.

Ramos, C., & Leal, I. (2013). Posttraumatic growth in the aftermath of trauma: A literature review about related factors and application contexts. *Psychology, Community and Health, 2*, 43-54.

Ramzi, S., & Besharat, M. A. (2010). The impact of hardiness on sport achievement and mental health. *Procedia - Social and Behavioral Sciences, 5*, 823–826.

Rees, T., Mitchell, I., Evans, L., & Hardy, L. (2010). Stressors, social support and psychological responses to sport injury in high- and low-performance standard participants. *Psychology of Sport and Exercise, 11*, 505–512.

Rees, T., Smith, B., & Sparkes, A. C. (2003). The influence of social support o the lived experiences of spinal cord injured sportsmen. *The Sport Psychologist, 17*, 335-356.

Rhodewalt, F., & Agustsdottir, S. (1984). On the relationship of hardiness to the Type A behavior pattern: Perception of life events versus coping with life events. *Journal of Research in Personality, 18*, 212-223.

Rhodewalt, F., & Zone, J. B. (1989). Appraisal of life change, depression, and illness in hardy and nonhardy women. *Journal of Personality and Social Psychology, 5*, 81-88.

Rinaldis, M., Pakenham, K. I., & Lynch, B. M. (2012). A structural model of the relationships among stress, coping, benefit-finding and quality of life in persons diagnosed with colorectal cancer. *Psychology & Health, 27*, 159–177.

Rinaldis, M., Pakenham, K., & Lynch, B. (2012) A structural model of the relationships among stress, coping, benefit finding and quality of life in

persons diagnosed with colorectal cancer. *Psychology and Health*, *27*, 159-177.

Rock, M., & Jones A. (2010) Preliminary investigation into the use of counseling skills in support of rehabilitation from sport injury. *Journal of Sport Rehabilitation, 11,* 284–304.

Rotella, R. J., & Heyman, S. R. (1986). Stress, injury and the psychological rehabilitation of athletes. In J.M. Williams (Ed.), *Applied sport psychology* (pp. 343-364). Palo Alto, CA: Mayfield.

Sabiston, C. M., McDonough, M. H., & Crocker, P. R. E. (2007). Psychosocial experiences of breast cancer survivors involved in a dragon boat program: Exploring links to positive psychological growth. *Journal of Sport & Exercise Psychology*, *29*, 419–438.

Salim, J., Wadey, R., & Diss, C. (2015). Examining the relationship between hardiness and perceived stress-related growth in a sport injury context. *Psychology of Sport and Exercise*, *19*, 10–17.

San Jose, A. (2003). Injury of elite athletes: Sport- and gender-related representations. *International Journal of Sport and Exercise Psychology*, *1*, 434-459.

Schaefer, J. A., & Moos, R. H. (1992). Life crises and personal growth. In B. N. Carpenter (Eds.), *Personal coping: Theory, research, and application.* (pp. 149- 170). Westport, CT: Praeger.

Schlosser, M. B., & Sheeley, L. A. (1985). *The hardy personality: Females coping with stress.* Paper presented at the annual convention of the American Psychological Association, Los Angeles.

Schoutrop, M. J. A., Lange, A., Hanewald, G., Davidovich, U., & Salomon, H. (2002). Structured writing and processing major stressful events: A controlled trial. *Psychotherapy & Psychosomatics, 71,* 151–157.

Sears, S. R., Stanton, A. L., & Danoff-Burg, S. (2003). The yellow brick road and the emerald city: Benefit finding, positive reappraisal coping and posttraumatic growth in women with early-stage breast cancer. *Health Psychology, 22*, 487–497.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Shamir, B., & and Eilam, G. (2005). 'What's Your Story?' A life-stories approach to authentic leadership development. *The Leadership Quarterly, 16,* 395- 417.

Simoni, P. S., & Paterson, J. J. (1988). Hardiness, coping, and burnout in the nursing workplace. *Journal of Professional Nursing, 13,* 178-185.

Singley, K, I., Hale, B, D., & Russell, M. (2012). Heart Rate, anxiety, and hardiness in novice (tandem) and experienced (solo) skydivers. *Journal of Sports Behavior, 35*, 453–469.

Smith, A. M., Scott, S. G., & Wiese, D. M. (1990). The psychological effects of sports injuries. Coping. *Sports Medicine, 9,* 352-369.

Smith, A. M., Scott, S. G., O'Fallon, W. M., & Young, M. L. (1990). Emotional responses of athletes to injury. *Mayo Clinic Proceedings, 65,* 38-50.

Smith, A. M., Stuart, M. J., Wiese-Bjomstal, D. M., Milliner, E. K., O'Fallon, W. M., & Crowson, C. S. (1993). Competitive athletes: Preinjury and postinjury mood state and self-esteem. *Mayo Clinic Proceedings, 68,* 939-947.

Smith, B., & Sparkes, A. (2005). Men, sport, spinal cord injury and narratives of hope. *Social Science and Medicine, 61,* 1095-1105.

Smith, B., & Sparkes, A. C. (2009). Narrative inquiry in sport and exercise psychology: What can it mean, and why might we do it? *Psychology of Sport and Exercise, 10,* 1–11.

Smith, N., Young, A., & Lee, C. (2004). Optimism, health-related hardiness and well-being among older Australia women. *Journal of Health Psychology, 9,* 741-752

Smith, R. E., Leffingwell, T. R., & Ptacek, J. T. (1999). Can people remember how they coped? Factors associated with discordance between same-day and retrospective reports. *Journal of Personality and Social Psychology, 76,* 1050-106.

Smyth, J. M. (1998). Written emotional expression: Effect sizes, out- come types, and moderating variables. *Journal of Consulting and Clinical Psychology, 66,* 174–184.

Smyth, J. M., Hockemeyer, J. R., & Tulloch, H. (2008). Expressive writing and post-traumatic stress disorder: effects on trauma symptoms, mood states, and cortisol reactivity. *British Journal of Health Psychology, 13,* 85–93.

Sparkes, A., & Smith, B. (2013) Spinal cord injury, sport, and the narrative possibilities of posttraumatic growth. In *Reframing disability and quality of life: A global perspective* (pp.129-143). New York: Springer.

Sparkes, A. C. (2015) Developing mixed methods research in sport and exercise psychology: Critical reflections on five points of controversy. *Psychology of Sport and Exercise, 16,* 49-59.

Sparkes, A. C., & Smith, B. (2009). Judging the quality of quantitative inquiry: Criteriology and relativism in action. *Psychology of Sport and Exercise, 10,* 491–497.

Stanton, A. L., & Danoff-Burg, S. (2002). Emotional expression, expressive writing, and cancer. In S. J. Lepore & J. M. Smyth (Eds.), *The writing cure: How expressive writing promotes health and emotional well-being* (pp. 31-51). Washington, DC: American Psychological Association.

Stanton, A. L., Danoff-Burg, S., Sworowski, L. A., Collins, C. A., Branstetter, A. D., & Rodriguez-Hanley, A., et al. (2002). Randomized, controlled trial of written emotional expression and benefit finding in breast cancer patients. *Journal of Clinical Oncology, 20,* 4160–4168.

Steiner, J. L., Wagner, C. D., Bigatti, S. M., & Storniolo, A. M. (2014). Depressive rumination and cognitive processes associated with depression in breast cancer patients and their spouses. *Families, Systems, & Health, 32,* 378–388.

Steinhardt, M. A., Dolber, C. L., Gottlieb, N. H., & McCalister, K. T. (2003). The relationship between hardiness, supervisor support, group cohesion, and job stress as predictors of job satisfaction. *American Journal of Health Promotion, 17,* 382-389.

Stockton, H., Stephen, J., & Hunt, N. (2014). Expressive Writing and Posttraumatic Growth: An Internet-Based Study. *International Journal of Traumatology, 20* 75–83.

Suedfeld, P., & Weiszbeck, T. (2004). The impact of outer space on inner space. *Aviation, Space, and Environmental Medicine, 75(Suppl. 1),* C6-C9.

Tamminen, K. A., Neely, K. C., & Holt, N. L. (2013). Exploring adversity and the potential for growth among elite female athletes. *Psychology of Sport and Exercise, 14,* 28-36.

Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist, 38,* 1161-1173.

Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15,* 1-18.

Tedeschi, R. G., & Calhoun, L. G. (2006). Foundations of posttraumatic growth. In R. G. Tedeschi & L. G. Calhoun (Eds.), *Handbook of posttraumatic growth* (pp. 3–23). New Jersey: Erlbaum

Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (1998). Posttraumatic growth: Conceptual issues. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (pp. 1−22). Mahwah, NJ: Erlbaum.

Tedeschi, R., & Calhoun, L. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.

Tennen, H., & Affleck, G. (2002). Benefit-finding and benefit-reminding. In: C. R. Snyder & S. J. Lopez (Eds.). *The handbook of positive psychology* (pp. 284-594*)*. New York: Oxford University Press.

Tennen, H., & Affleck, G. (2003). While accentuating the positive, don't eliminate the negative or Mr. in-between. *Psychological Inquiry, 14*, 163-169.

Tennen, H., Affleck, G., Urrows, S., Higgins, P., & Mendola, R. (1992). Perceiving control, construing benefits, and daily processes in rheumatoid arthritis. *Canadian Journal of Behavioral Science, 24*, 186-203.

Thomas, S., Reeves, C., Agombar, J., & Greenlees, I. (2013). Personality hardiness at different levels of competitive motorcycling. *Perceptual and Motor Skills, 116*, 315–321.

Tracey, J. (2003). The emotional response to the injury and rehabilitation process. *Journal of Applied Sport Psychology, 15,* 279-293.

Tracey, J. (2011). Self-cultivation and meaning through the experience of injury rehabilitation: A case study of two female basketball players. *Journal of Excellence, 12,* 28-39.

Tugade, M, M., & Fredrickson, B, L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86,* 320-333.

Tugade, M. M., & Fredrickson, B. L. (2006). Regulation of positive emotions: Emotion regulation strategies that promote resilience. *Journal of Happiness Studies, 8,* 311-333.

Udry, E., Gould, S., Bridges, D., & Beck, L. (1997). Down but not out: Athlete responses to season-ending injuries. *Journal of Sport & Exercise Psychology, 19,* 229-248.

Ullman, S. E. (2014). Correlates of posttraumatic growth in sexual assault survivors. *Traumatology, 20,* 219-224.

Ullrich, P. A., & Lutgendorf, S. L. (2002). Journaling about stressful events: Effects of cognitive processing and emotional expression. *Annals of Behavioral Medicine, 24,* 244-250.

Wadey, R., & Evans, L. (2011). Working with injured athletes: Research and practice. In S. Hanton & S. D. Mellalieu (Eds.), *Professional practice in sport psychology: A review* (pp. 107-132). London: Routledge.

Wadey, R., & Hanton, S. (2014, in press). Psychology of sport injury: Resilience and thriving. In F. G. O'Conner & R. Wilder (Eds.). *Running medicine*. New York: McGraw Hill.

Wadey, R., Clark, S., Podlog, L., & McCullough, D. (2013). Coaches' perceptions of athletes' stress-related growth following sport injury. *Psychology of Sport and Exercise, 14,* 125-135.

Wadey, R., Evans, L., Evans, K., & Mitchell, I. (2011). Perceived benefits following sport injury: A qualitative examination of their antecedents and underlying mechanisms. *Journal of Applied Sport Psychology, 23,* 142-158.

Wadey, R., Evans. L., Hanton, S., & Neil, R. (2012a). An examination of hardiness throughout the sport injury process. *British Journal of Health Psychology, 17,* 103-128.

Wadey, R., Evans, L., Hanton, S., & Neil, R. (2012b). An examination of hardiness throughout the sport injury process: A qualitative follow-up study. *British Journal of Health Psychology, 17*, 872-893.

Wadey, R., Podlog, L., Hall, M., Hamson-Utley, J., Hicks-Little, C., & Hammer, C. (2014). Reinjury anxiety, coping, and return-to-sport outcomes: A multiple mediation analysis. *Rehabilitation Psychology, 59*, 256–66.

Walker, N., Thatcher, J., & Lavallee, D. (2007). Psychological responses to injury in competitive sport: A critical review. *Journal of Royal Society for the Promotion of Health, 127,* 174-180.

Waysman, M., Schwarzwald, J., & Solomon, Z. (2001). Hardiness: An examination of its relationship with positive and negative long term changes following trauma. *Journal of Traumatic Stress, 14,* 531-48.

Weiss, M.R., & Ebbeck, V. (1996). Perceptions of competence and self-esteem in youth sport: Theory, research, and enhancement strategies. In O. Bar-Or (Ed.), *The encyclopedia of sports medicine, Volume V: The child and adolescent athlete* (pp. 364-382). Oxford: Blackwell Scientific.

Weiss, M.R., & Troxel, R.K. (1986). Psychology of the injured athlete. *Athletic Training, 21,* 104-110.

Wesch, N., Hall, C., Prapavessis, H., Maddison, R., Bassett, S., Foley, L., & Forwell, L. (2012). Self-efficacy, imagery use, and adherence during injury rehabilitation. *Scandinavian Journal of Medicine and Science in Sports*, *22*, 695–703.

Whitelock, C. F., Lamb, M. E., & Rentfrow, P. J. (2013). Overcoming trauma: psychological and demographic characteristics of child sexual abuse survivors in adulthood. *Clinical Psychological Science*, *1*, 351–362.

Widows, M. R., Jacobsen, B. P., Booth-Jones, M., & Fields, K. K. (2005). Predictors of posttraumatic growth following bone marrow transplantation for cancer. *Health Psychology*, *24*, 266–273.

Wiebe, D. J., & Williams, P.G. (1992). Hardiness and health: A social psychophysiological perspective on stress and adaptation. *Journal of Social and Clinical Psychology, 11,* 238-262.

Wiese-Bjornstal, D. M., Smith, A. M., Shaffer, S. M., & Morrey, M. A. (1998). An integrated model of response to sport injury: Psychological and sociological dynamics. *Journal of Applied Sport Psychology, 10*, 46-69.

Wiesse-Bjornstal, D, M, Smith, A, M., & LaMott, E. E. (1995). A model of psychologic response to athletic injury and rehabilitation. *Athletic Training and Sports Health Care Perspectives, 1,* 16-30.

Williams, J. M., & Andersen, M. B. (1998). Psychosocial antecedents of sport injury: Review and critique of the stress and injury model. *Journal of Applied Sport Psychology, 10*, 5-25.

Williams, P. G., Wiebe, D. J., and Smith, T. W. (1992). Coping processes as mediators of the relationship between hardiness and health. *Journal of Behavioral Medicine, 15*, 237–255.

Williams, R. A., & Appaneal, R. N. (2010). Social support and sport injury. *Athletic Therapy Today*, *15*, 46-50.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis*, *11*, 203-214.

Wortman C. B. (2004). Posttraumatic growth: Progress and problems. *Psychological Inquiry. 15*, 81–90.

Young, K., & White, P. (1995) Sport, physical danger and injury: The experiences of elite women athletes. *Journal of Sport and Social Issues, 19*, 45-61.

Young, K., White, P., & W. McTeer (1994). Body talk: Male athletes reflect on sport, injury and pain. *Sociology of Sport Journal, 11*, 175-194.

Zoellner, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology - a critical review and introduction of a two component model. *Clinical Psychology Review*, *26*, 626–53.

Appendices

Appendix 1

Instructions: Please answer every question by circling the number that represents your response.
Because of my injury (i.e., the injury that kept you out of sport for a minimum of 4 weeks within the last 3 years) …

	Not at all	Somewhat	Great deal
1. I developed new relationships with helpful others ……	0	1	2
2. I gained new knowledge about the world …….……	0	1	2
3. I learned that I was stronger than I thought I was …….....	0	1	2
4. I became more accepting of others ……	0	1	2
5. I realized I have a lot to offer other people …….. .	0	1	2
6. I learned to respect others' feelings and beliefs ……	0	1	2
7. I learned to be nicer to others ……...	0	1	2
8. I rethought how I want to live my life ……. ..	0	1	2
9. I learned that I want to accomplish more in life …….....	0	1	2
10. My life now has more meaning and satisfaction …….....	0	1	2
11. I learned to look at things in a more positive way …….. ..	0	1	2
12. I learned better ways to express my feelings…….....	0	1	2
13. I learned that there is a reason for everything ……...…	0	1	2
14. I developed/increased my faith in God ……...	0	1	2
15. I learned not to let hassles bother me the way they used to……	0	1	2
16. I learned to take more responsibility for what I do ……. ..…	0	1	2

	Not at all	Somewhat	Great deal
17. I learned to live for today, because you never know what will happen tomorrow ……....	0	1	2
18. I don't take most things for granted anymore ……	0	1	2
19. I developed/increased my trust in God ……..……..	0	1	2
20. I feel freer to make my own decisions ……	0	1	2
21. I learned that I have something of value to teach others about life ……	0	1	2
22. I understand better how God allows things to happen …….	0	1	2
23. I learned to appreciate the strength of others who have had a difficult life…	0	1	2
24. I learned not to "freak out" when a bad thing happens ……	0	1	2
25. I learned to think more about the consequences of my actions …….	0	1	2
26. I learned to get less angry about things ……..	0	1	2
27. I learned to be a more optimistic person …….	0	1	2
28. I learned to approach life more calmly …….	0	1	2
29. I learned to be myself and not try to be what others want me to be …….. .	0	1	2
30. I learned to accept myself as less than perfect ……..	0	1	2
31. I learned to take life more seriously ……..	0	1	2
32. I learned to work through problems and not just give up ……..….	0	1	2
33. I learned to find more meaning in life ……...	0	1	2
34. I changed my life goals for the better ……...	0	1	2

	Not at all	Somewhat	Great deal
35. I learned how to reach out and help others …….	0	1	2
36. I learned to be a more confident person …… …	0	1	2
37. I learned not to take my physical health for granted ……....	0	1	2
38. I learned to listen more carefully when others talk to me ……..... ….	0	1	2
39. I learned to be open to new information and ideas …….	0	1	2
40. I now better understand why, years ago, my parents said/did certain things ….	0	1	2
41. I learned to communicate more honestly with others …….	0	1	2
42. I learned to deal better with uncertainty …….	0	1	2
43. I learned that I want to have some impact on the world …….....	0	1	2
44. I learned that it's okay to ask others for help ……. ..	0	1	2
45. I learned that most of what used to upset me were little things that aren't worth getting upset about ……	0	1	2
46. I learned to stand up for my personal rights …….……	0	1	2
47. A prior relationship with another person became more meaningful. …….. .	0	1	2
48. I became better able to view my parents as people, and not just parents ..…	0	1	2
49. I learned that there are more people who care about me than I thought … ...	0	1	2
50. I developed a stronger sense of community, of belonging that I am part of a larger group ……..……...	0	1	2

Appendix 2

Instructions: These items deal with way you coped with your injury. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can. **Please answer every question by circling the number that represents your response.**

	I did not do this at all	I did this a a little bit	I did this a medium amount	I did this a lot
1. I turned to work or other activities to take my mind off things…..	1	2	3	4
2. I concentrated on my efforts on doing something about the situation I was in…….…….	1	2	3	4
3. I said to myself "this isn't real"…….....	1	2	3	4
4. I used alcohol or other drugs to make myself feel better…….....	1	2	3	4
5. I got emotional support from others…….	1	2	3	4
6. I gave up trying to deal with it……...	1	2	3	4
7. I took action to try and make the situation better……..…….....	1	2	3	4
8. I refused to believe that it had happened……..…….....	1	2	3	4
9. I said things to let my unpleasant feelings escape……...…..…	1	2	3	4
10. I got help and advice from other people……..……...	1	2	3	4
11. I used alcohol or other drugs to help me get through it.…….….	1	2	3	4

	I did not do this at all	I did this a a little bit	I did this a medium amount	I did this a lot
12. I tried to see it in a different light, to make it seem more positive…..	1	2	3	4
13. I criticized myself……..…….	1	2	3	4
14. I tried to come up with a strategy about what to do……..……...	1	2	3	4
15. I got comfort and understanding from someone…….…….	1	2	3	4
16. I gave up the attempt to cope…….……..……	1	2	3	4
17. I looked for something good in what was happening…….…..	1	2	3	4
18. I made jokes about it……..……	1	2	3	4
19. I did something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping ……..	1	2	3	4
20. I accepted the reality of the fact that it had happened …….....	1	2	3	4
21. I expressed my negative feelings……..……...……..	1	2	3	4
22. I tried to find comfort in my religion or spiritual beliefs …..…….....	1	2	3	4
23. I tried to get advice or help from other people about what to do…	1	2	3	4
24. I learnt to live with it……..……..	1	2	3	4
25. I thought hard about what steps to take…….……	1	2	3	4
26. I blamed myself for things that happened…….	1	2	3	4
27. I prayed or meditated……...	1	2	3	4
28. I made fun of the situation…….……...	1	2	3	4

Appendix 3

Instructions: Below are statements about life that people often feel differently about. Circle a number to show how you feel about each one. Read the items carefully and indicate how much you think each one is true in general. There are no right or wrong answers; just give your honest opinion.

		Not at all true	A little true	Quite true	Completely true
1.	Most of my life gets spent doing things that are worthwhile	0	1	2	3
2.	Planning ahead can help avoid most future problems	0	1	2	3
3.	Trying hard doesn't pay, since things still don't turn out right	0	1	2	3
4.	No matter how hard I try, my efforts usually accomplish nothing	0	1	2	3
5.	I don't like to make changes to my everyday schedule	0	1	2	3
6.	The 'tried and true' ways are always the best	0	1	2	3
7.	Working hard doesn't matter, since only the bosses profit by it	0	1	2	3
8.	By working hard you can always achieve your goals	0	1	2	3
9.	Most working people are simply manipulated by their bosses	0	1	2	3
10.	Most of what happens in life is just meant to be	0	1	2	3
11.	It's usually impossible for me to change things at work	0	1	2	3
12.	New laws should never hurt a person's pay check	0	1	2	3
13.	When I make plans, I'm certain I can make them work	0	1	2	3
14.	It's very hard for me to change a friend's mind about something	0	1	2	3
15.	It's exciting to learn something about myself	0	1	2	3
16.	People who never change their mind usually have good judgement	0	1	2	3
17.	I really look forward to my work	0	1	2	3
18.	Politicians run our lives	0	1	2	3
19.	If I'm working on a difficult task, I know when to seek help	0	1	2	3
20.	I won't answer a question until I am really sure I understand it	0	1	2	3
21.	I like a lot of variety in my work	0	1	2	3
22.	Most of the time, people listen carefully to what I say	0	1	2	3

	Not at all true	A little true	Quite true	Completely true
23. Daydreams are more exciting than reality for me	0	1	2	3
24. Thinking of yourself as a free person just leads to frustration	0	1	2	3
25. Trying your best at work really pays off in the end	0	1	2	3
26. My mistakes are usually very difficult to correct	0	1	2	3
27. It bothers me when my daily routine gets interrupted	0	1	2	3
28. It's best to handle most problems by just not thinking of them	0	1	2	3
29. Most good athletes and leaders are born, not made	0	1	2	3
30. I often wake up eager to take my life up wherever it left off	0	1	2	3
31. Lots of times, I really don't know my own mind	0	1	2	3
32. I respect rules because they guide me	0	1	2	3
33. I like it when things are uncertain or unpredictable	0	1	2	3
34. I can't do much to prevent it if someone wants to harm me	0	1	2	3
35. People who do their best should get full support from society	0	1	2	3
36. Changes in routines are interesting to me	0	1	2	3
37. People who believe in individuality are only kidding themselves	0	1	2	3
38. I have no use for theories that are not closely tied to facts	0	1	2	3
39. Most days, life is really interesting and exciting for me	0	1	2	3
40. I want to be sure someone will take care of me when I'm old	0	1	2	3
41. It's hard to imagine anyone getting excited about working	0	1	2	3
42. What happens to me tomorrow depends on what I do today	0	1	2	3
43. If someone gets angry at me, it's usually no fault of mine	0	1	2	3
44. It's hard to believe people who say their work helps society	0	1	2	3
45. Ordinary work is just too boring to be worth doing	0	1	2	3

Appendix 4

Preparation Booklet (H)

PLEASE BRING ALONG TO INTERVIEW

Dear [insert name]

A recent study that you were involved in showed that athletes experience a range of recovery outcomes following a sporting injury. It has also been found that specific coping types can help or hinder athletes with their recovery across the three phases of injury: (a) injury onset, (b) rehabilitation, and (c) return back to full training.

Where to next:

I am now interested in taking this research further and look at how these coping strategies could help or hinder recovery outcomes at injury onset, rehabilitation and returning back to full training. I have selected a number of cases from the previous study to explore in greater depth about their recovery outcomes over the three phases of injury.

The Questions…

I will be asking you questions about you, your sporting injury and how you coped with this throughout each stage of your injury (i.e., onset, rehabilitation, and return back to full training). The questions will also identify recovery outcomes (if any) from your sporting injury, and how you came to develop these.

Tasks to help you prepare:

Overleaf are some tasks to help you make the most of the interview experience which you should try to complete before the interview. These tasks are linked to the questions that will be asked throughout the interview, which will help the process to flow more smoothly. Depending on your personal experience, you may or may not be able to answer some of the sections, but please do try to answer as much as possible, in as much detail as possible. Try to think back to any thoughts and feelings that you would have experienced.

There are three phases to injury:

(1) The onset phase is between the moment you got injured until you had your first physiotherapy session.
(2) The rehabilitation phase is where you began physiotherapy until you returned to full training or competition.
(3) The return back phase is from your first full training session or competitive game until now.

Spend 5 minutes thinking about what thoughts (e.g., “I can deal with this”, “I cannot deal with this”, “What do I need to do”, “I give up”) and feelings (e.g., happiness, relaxed, challenged, anxious, and worried) you experienced during each phase of your recovery.

Injury onset

Thoughts:_____
_____
_____
_____
_____
Feelings:_____
_____
_____
_____
_____

Rehabilitation

Thoughts:_____
_____
_____
_____
_____
Feelings_____
_____
_____
_____
_____

Return back to full training and/or competition

Thoughts:_____
_____
_____
_____
_____
Feelings_____
_____
_____
_____
_____

Two coping strategies that you used: (a) reframing and, (b) using emotional support

(a) You reframed your thoughts from negative to positive (e.g., looking for something good in what is happening)
(b) You sought or received emotional support from others, or comfort and understanding from someone

Try to think about during injury onset, rehabilitation and return back to full training how, why, and where you used either of these coping strategies

Injury onset

Thought reframing

_____
_____
_____
_____

_____

Emotional support

_____
_____
_____
_____

_____

Rehabilitation

Thought reframing

_____
_____
_____
_____

_____

Emotional support

_____
_____
_____
_____

_____

Return back to full training and/or competition

Thought reframing

Emotional support

Please take a few moments to think about how would you describe your recovery from injury? (i.e., was it successful or unsuccessful? if so, then why?)

Thank-you for your help, it is greatly appreciated

Additional notes

-

Appendix 5

Preparation Booklet (Low)

PLEASE BRING ALONG TO INTERVIEW

Dear [insert name]

A recent study that you were involved in showed that athletes experience a range of recovery outcomes following a sporting injury. It has also been found that specific coping types can help or hinder athletes with their recovery across the three phases of injury: (a) injury onset, (b) rehabilitation, and (c) return back to full training.

Where to next:

I am now interested in taking this research further and look at how these coping strategies could help or hinder recovery outcomes at injury onset, rehabilitation and returning back to full training. I have selected a number of cases from the previous study to explore in greater depth about their recovery outcomes over the three phases of injury.

The Questions…

I will be asking you questions about you, your sporting injury and how you coped with this throughout each stage of your injury (i.e., onset, rehabilitation, and return back to full training). The questions will also identify recovery outcomes (if any) from your sporting injury, and how you came to develop these.

Tasks to help you prepare:

Overleaf are some tasks to help you make the most of the interview experience which you should try to complete before the interview. These tasks are linked to the questions that will be asked throughout the interview, which will help the process to flow more smoothly. Depending on your personal experience, you may or may not be able to answer some of the sections, but please do try to answer as much as possible, in as much detail as possible. Try to think back to any thoughts and feelings that you would have experienced.

From reviewing your findings, it appears you didn't use these strategies much:

(a) Emotional support: Where someone would get emotional support from others, or comfort and understanding from someone

(b) Positive reframing: reframe thoughts from very negative, to in some way positive. Such as to try and look for something good in what is happening

Try to think about why did you not use these strategies much?

Emotional support:

_____
_____
_____
_____
_____

Positive reframing:

_____
_____
_____
_____
_____

Please take a few moments to think about and explain, how would you describe your recovery from injury? (i.e., was it successful or unsuccessful? if so, then why?)

_____
_____
_____
_____
_____

_

Thank-you for your help, it is greatly appreciated

Additional notes

-

Appendix 6

University of Roehampton
London

Interview Guide

INTERVIEW GUIDE (H)

SECTION 1: INTRODUCTION

My name is Jade Salim and I am from the University of Roehampton. Thank you for agreeing to participate in this interview. In this study I will be talking to participants from study 1 and exploring how different personality types use coping strategies throughout recovery. The interview will contain a variety of questions, which follow through your injury onset, rehabilitation, and return. Any information given and any responses made will remain completely anonymous and confidential. I will possibly use some of the interview to discuss points in the write up but they will also remain anonymous. Throughout the entire interview I will be using a tape recorder to ensure that the information given is a true account of the interview which took place.

This interview will be about your experiences and if you do not feel comfortable answering any questions, then you are more than welcome to stop the interview or say that you are not happy answering. There will be no correct or incorrect answers to the interview, so do not feel that I am looking for a correct answer. If there are any questions you feel uncomfortable answering, then please feel free to say you do not want comment rather than try and answer the question how you would think I or anybody else would want you to answer. I want to learn about your experience from being injured so I hope you can answer in an honest and clear way. If you do not wish to discuss certain parts of the interview, then simply say "no comment" and we can move on to the next question. If you have any questions throughout the interview, especially if you are unclear then please do not hesitate to ask.

Throughout the interview I will be asking questions based on past experiences. Feel free to take your time and pause where necessary when trying to remember the past. If you feel there is anything you feel had an impact on you during this time then please feel free to include this. This could include anything to do with friends, family, during competition, during training or any other experiences you have had. If you are having trouble recalling anything, then it is not a problem, just let me know.

Thank you again for your participation in this study. Before we begin the interview, is there anything you would like to ask or are unclear of?

SECTION 2: YOU AND YOUR SPORT

In this section I am interested in finding out all about you and your sporting career.

(1) Tell me more about your involvement in [sport]?
(2) How did you get into [sport]?
(3) How long have you participated in [sport]?
(4) What is your current level of competition?
(5) How long have you competed at this level?
(6) Have you had many injuries in the past?
(7) What role have injuries played in your career in the past?

SECTION 2: YOUR INJURY

In this section I am interested in your injury and the events that led up to you being injured. I would like to confirm information you have already told me about your injury and gain an insight into what happened and the causes of your injury.

(1) From your questionnaire I see your injury was [insert nature/type], tell me more about this?

(2) From your questionnaire I see you were out of training because of your injury for [insert amount of weeks] (confirmation)

(3) When did it happen? (e.g., mid-season)

(4) Where did you get injured (e.g., competition, training, outside of your sport)

(5) Explain to me exactly what happened which led to you getting injured?

SECTION 3: RECOVERY OUTCOMES

From your questionnaire, you have shown to have experienced a number/ a few recovery outcomes from your injury such as: (dependant on the individual)

Different types of outcomes: psychological outcomes (learned not to let hassles bother me the way they used to), physical outcomes (I learned to work through problems and not just give up), personal outcomes (I learned to be more optimistic), social outcomes (better relationships, nicer to others)

1. Can you explain to me in more detail about each of these recovery outcomes?

    (a)… (outcomes highlighted in questionnaire)

    (b)… (outcomes highlighted in questionnaire)

    (c)… (outcomes highlighted in questionnaire)

    (d)… (outcomes highlighted in questionnaire)

    (e)… (outcomes highlighted in questionnaire)

    Probe: Can you give me an example?
    Probe: What do you mean by...? (clarification probe)
    Probe: Can you tell me more about …? (elaboration probe)

2. Did these outcomes have any effect since you have returned?

    Probe: Can you give me an example?
    Probe: What do you mean by...? (clarification probe)
    Probe: Can you tell me more about …? (elaboration probe)

3. Did these outcomes have any effect following your return outside of your sporting life?

    Probe: Can you give me an example?
    Probe: What do you mean by...? (clarification probe)
    Probe: Can you tell me more about …? (elaboration probe)

SECTION 4: COPING STRATEGIES

I know the following information was in your preparation booklet, but just to remind you of the three phases of injury before we move onto the next section.

(1) The onset phase is between the moment you got injured until you had your first physiotherapy session.
(2) The rehabilitation phase is where you began physiotherapy until you returned to full training or competition.
(3) The return back phase is from your first full training session or competitive game until now.

Your questionnaire found you to use ‘emotional support’

(1) What does ‘emotional support’ mean to you?

Probe: Use emotional support item here if they struggle

(2) How did using this help you to cope?

(3) Did you use this strategy during your injury onset?

Probe: Who provided you with support?
Probe: Did they approach you or did you approach them?
Probe: Why did you accept it or seek it out?
Probe: What was said?
Probe: Where did they provide this support?
Probe: What is beneficial or a hindrance during this phase? If so, how?

(4) Did you use this strategy during rehabilitation?

Probe: Who provided you with support?
Probe: Did they approach you or did you approach them?
Probe: Why did you accept it or seek it out?
Probe: What was said?
Probe: Where did they provide this support?
Probe: What is beneficial or a hindrance during this phase? If so, how?

(5) Did you use this strategy when returning back?

Probe: Who provided you with support?
Probe: Did they approach you or did you approach them?
Probe: Why did you accept it or seek it out?
Probe: What was said?
Probe: Where did they provide this support?
Probe: What is beneficial or a hindrance during this phase? If so, how?

Your questionnaire found you to use ‘positive reframing’

(1) What does ‘’positive reframing mean to you?

Probe: Use positive reframing item here if they struggle

(2) How did using this how using this helped you to cope?
(3) Did you use this strategy during your injury onset?

Probe: What exactly did you do?
Probe: Did you know how to do this or did somebody help?
Probe: Why did you use this?

Probe: How did this help you to cope during this phase?
Probe: What is beneficial or a hindrance during this phase? If so, how

(4) Did you use this strategy during rehabilitation?

Probe: What exactly did you do?
Probe: Did you know how to do this or did somebody help?
Probe: Why did you use this?
Probe: How did this help you to cope during this phase?
Probe: What is beneficial or a hindrance during this phase? If so, how?

(5) Did you use this strategy when returning back?

Probe: What exactly did you do?
Probe: Did you know how to do this or did somebody help?
Probe: Why did you use this?
Probe: How did this help you to cope during this phase?
Probe: What is beneficial or a hindrance during this phase? If so, how?

Your questionnaire found that you used both positive reframing and emotional support (even just a small amount)

(1) Do you recall using both positive reframing and emotional support during:

a. Injury onset?

Probe: Why did you use both at this stage?
Probe: How did this help you to cope?
Probe: Did you use one before the other?
Probe: Why did you choose to use them in this order?

b. Rehabilitation?

Probe: Why did you use both at this stage?
Probe: How did this help you to cope?
Probe: Did you use one before the other?
Probe: Why did you choose to use them in this order?

c. Return?

Probe: Why did you use both at this stage?
Probe: How did this help you to cope?
Probe: Did you use one before the other?
Probe: Why did you choose to use them in this order?

(2) How do you think using emotional support and positive reframing led to you gain the highlighted recovery outcomes?

Probe: Do you think it helped with:

(a) (outcomes highlighted in questionnaire), if so:

a. How did it help?
b. Why did it help?
c. When did it help? (Onset, rehabilitation, return back)
d. What exactly did you do to gain these outcomes?

(b) (outcomes highlighted in questionnaire)

a. How did it help?
b. Why did it help?
c. When did it help? (Onset, rehabilitation, return back)
d. What exactly did you do to gain these outcomes?

(c) (outcomes highlighted in questionnaire)

a. How did it help?
b. Why did it help?
c. When did it help? (Onset, rehabilitation, return back)
d. What exactly did you do to gain these outcomes?

(d) (outcomes highlighted in questionnaire)

a. How did it help?
b. Why did it help?
c. When did it help? (Onset, rehabilitation, return back)
d. What exactly did you do to gain these outcomes
e.

(1) SECTION 5: CONCLUSION

(1) How do you feel the interview went?

(2) Did you feel able to speak freely and say the things you wanted to?

(3) Were you unhappy at any point with any of the questions I asked?

(4) Do you feel like I influenced you in any way?

(5) Do you feel like I missed any important areas that you would like to discuss or add to?

Thank you for participating in this study

Appendix 7

Interview Guide

INTERVIEW GUIDE (L)

SECTION 1: INTRODUCTION

My name is Jade Salim and I am from the University of Roehampton. Thank you for agreeing to participate in this interview. In this study I will be talking to participants from study 1 and exploring how different personality types use coping strategies throughout recovery. The interview will contain a variety of questions, which follow through your injury onset, rehabilitation, and return. Any information given and any responses made will remain completely anonymous and confidential. I will possibly use some of the interview to discuss points in the write up but they will also remain anonymous. Throughout the entire interview I will be using a tape recorder to ensure that the information given is a true account of the interview which took place.

This interview will be about your experiences and if you do not feel comfortable answering any questions, then you are more than welcome to stop the interview or say that you are not happy answering. There will be no correct or incorrect answers to the interview, so do not feel that I am looking for a correct answer. If there are any questions you feel uncomfortable answering, then please feel free to say you do not want comment rather than try and answer the question how you would think I or anybody else would want you to answer. I want to learn about your experience from being injured so I hope you can answer in an honest and clear way. If you do not wish to discuss certain parts of the interview, then simply say "no comment" and we can move on to the next question. If you have any questions throughout the interview, especially if you are unclear then please do not hesitate to ask.

Throughout the interview I will be asking questions based on past experiences. Feel free to take your time and pause where necessary when trying to remember the past. If you feel there is anything you feel had an impact on you during this time then please feel free to include this. This could include anything to do with friends, family, during competition, during training or any other experiences you have had. If you are having trouble recalling anything, then it is not a problem, just let me know.

Thank you again for your participation in this study. Before we begin the interview, is there anything you would like to ask or are unclear of?

SECTION 2: YOU AND YOUR SPORT

In this section I am interested in finding out all about you and your sporting career.

1. Tell me more about your involvement in [sport]?
2. How did you get into [sport]?
3. How long have you participated in [sport]?
4. What is your current level of competition?
5. How long have you competed at this level?
6. Had you had many injuries in the past?
7. What role have injuries played in your career in the past?

SECTION 2: YOUR INJURY

In this section I am interested in your injury and the events that led up to you being injured. I would like to confirm information you have already told me about your injury and gain an insight into what happened and the causes of your injury.

(1) From your questionnaire I see your injury was [insert nature/type], tell me more about this?

(2) From your questionnaire I see you were out of training because of your injury for [insert amount of weeks] (confirmation)

(3) When did it happen? (e.g., mid-season)

(4) Where did you get injured (e.g., competition, training, outside of your sport)

(5) Explain to me exactly what happened which led you to get injured?

SECTION 3: COPING STRATEGIES

I know the following information was in your preparation booklet, but just to remind you of the three phases of injury before we move onto the next section.

(1) The onset phase is between the moment you got injured until you had your first physiotherapy session.
(2) The rehabilitation phase is where you began physiotherapy until you returned to full training or competition.
(3) The return back phase is from your first full training session or competitive game until now.

Some athletes during their recovery use emotional support, whereas others do not. From reviewing your questionnaire, it shows that that you used only a minimal amount of 'emotional support'. However, before we explore this further, what does emotional support mean to you?

(1) Tell me what you were thinking during the onset?

Probe: What did you do about these thoughts?

(2) Tell me what you were feeling during the onset phase?

Probe: What did you do about these feelings?

(3) Why did you choose to use a minimal amount of emotional support at onset?

Probe: Did you try to approach anybody to talk? did anybody approach you?
Probe: Was there anybody to talk to?
Probe: Have you ever spoken to anybody about you emotions? If so, why did you not chose to this time? If not, why not?
Probe: What stopped you talking about your thoughts feelings?

(4) Tell me what you were feeling during the rehabilitation phase?

Probe: Why were you feeling like this?
Probe: What did you do with these feelings?

(5) Tell me what you were thinking during the rehabilitation phase?

Probe: What did you do about these thoughts?
Probe: So, did you talk to anybody about these thoughts?

(6) Why did you choose to use a minimal amount of emotional support at rehabilitation?

Probe: Did you try to approach anybody to talk? did try to anybody approach you?
Probe: Was there anybody to talk to?
Probe: Have you ever spoken to anybody about you emotions? If so, why did you not chose to this time? If not, why not?

Probe: What stopped you talking about your thoughts feelings during this stage?

(7) Tell me what you were feeling when returning back to full training and/or competition?

Probe: What did you do about these feelings?

(8) Tell me what you were thinking when returning back to full training and/ or competition?

Probe: What did you do about these thoughts?
Probe: So, did you talk to anybody about these thoughts?

(9) Why did you choose to use a minimal amount of emotional support when returning back to full training and/or competition?

Probe: Did you try to approach anybody to talk? did try to anybody approach you?
Probe: Was there anybody to talk to?
Probe: Have you ever spoken to anybody about you emotions? If so, why did you not chose to this time? If not, why not?
Probe: What stopped you talking about your thoughts feelings during this stage?

Some athletes during their recovery use positive reframing, whereas others do not. From reviewing your questionnaire, it shows that that you used only a minimal amount of 'positive reframing. However, before we explore this further..

….what does positive reframing mean to you?

(1) Can you recall why you used very little positive reframing during onset?

Probe: Did you at any point try to reframe the situation during onset? If so, then how? If not, then why?
Probe: Did you know how to reframe the situation?
Probe: Did anybody try to help you to reframe the situation? If so, who?

(2) Can you recall why you used very little positive reframing during rehabilitation?

Probe: Did you at any point try to reframe the situation during rehabilitation? If so, then how? If not, then why?
Probe: Did you know how to reframe the situation?
Probe: Did anybody try to help you to reframe the situation? If so, who?

(3) Can you recall Can you recall why you used very little positive reframing when returning back to full training and/or competition?

Probe: Did you at any point try to reframe the situation during this phase? If so, then how? If not, then why?
Probe: Did you know how to reframe the situation?
Probe: Did anybody try to help you to reframe the situation? If so, who?

SECTION 5: CONCLUSION

(1) How do you feel the interview went?

(2) Did you feel able to speak freely and say the things you wanted to?

(3) Were you unhappy at any point with any of the questions I asked?

(4) Do you feel like I influenced you in any way?

(5) Do you feel like I missed any important areas that you would like to discuss or add to?

Thank you for participating in this study

Appendix 8

Name:

Instructions: In answering the following questions please consider your writing session. **Please answer every question by circling the number that represents your response.**

1= Not at all 5= Great deal

1.	Overall how personal was the journal to you? ……..……..……	1	2	3	4	5
2.	Prior to the experiment how much had you told people about the things you [wrote/said]? ……..……	1	2	3	4	5
3.	Overall, how much did you reveal the emotions in what you [wrote/said]?.....	1	2	3	4	5
4.	Throughout the session how difficult was it for you to [write/talk]? ……...	1	2	3	4	5
5.	In general how sad or down have you felt?.....	1	2	3	4	5
6.	In general how happy have you felt?.....	1	2	3	4	5
7.	Before the experiment ever began, to what degree did you think about the topics you [wrote/spoke] about?…….	1	2	3	4	5
8.	To what degree has this experiment been valuable or meaningful for you …….	1	2	3	4	5
9.	In your own words, what do you think this experiment is trying to prove:					

Appendix 9

University of Roehampton
London

Interview Guide
(Verbal disclosure)

INTERVIEW GUIDE

SECTION 1: INTRODUCTION (Not recorded)

My name is Jade Salim and I am from the University of Roehampton. Thank you for agreeing to participate in this interview. In this study I will be talking to participants to explore the effectiveness of using written emotional disclosure following your sport injury. The interview will contain a variety of questions, which follow through the written disclosure sessions. Any information given and any responses made will remain completely anonymous and confidential. I will possibly use some of the interview to discuss points in the write up but they will also remain anonymous. Throughout the entire interview I will be using a tape recorder to ensure that the information given is a true account of the interview which took place.

This interview will be about your experiences and if you do not feel comfortable answering any questions, then you are more than welcome to stop the interview or say that you are not happy answering. There will be no correct or incorrect answers to the interview, so do not feel that I am looking for a correct answer. If there are any questions you feel uncomfortable answering, then please feel free to say you do not want comment rather than try and answer the question how you would think I or anybody else would want you to answer. I want to learn about your experience from using written disclosure following being injured so I hope you can answer in an honest and clear way. If you do not wish to discuss certain parts of the interview, then simply say "no comment" and we can move on to the next question. If you have any questions throughout the interview, especially if you are unclear then please do not hesitate to ask.

Throughout the interview I will be asking questions based on past experiences. Feel free to take your time and pause where necessary when trying to remember the past. If you feel there is anything you feel had an impact on you during this time then please feel free to include this. This could include anything to do with friends, family, during competition, during training or any other experiences you have had. If you are having trouble recalling anything, then it is not a problem, just let me know.

Thank you again for your participation in this study. Before we begin the interview, is there anything you would like to ask or are unclear of?

SECTION 2: YOU AND YOUR SPORT

In this section I am interested in finding out all about you and your sporting career.

1. Tell me more about your involvement in [sport]?
2. How did you get into [sport]?
3. How long have you participated in [sport]?
4. What is your current level of competition?
5. How long have you competed at this level?
6. Had you had many injuries in the past?
7. What role have injuries played in your career in the past?

SECTION 2: YOUR INJURY

In this section I am interested in your injury and the events that led up to you being injured. I would like to confirm information you have already told me about your injury and gain an insight into what happened and the causes of your injury.

(1) From your questionnaire I see your injury was [insert nature/type], tell me more about this?

(2) From your questionnaire I see you were out of training because of your injury for [insert amount of weeks] (confirmation)

(3) When did it happen? (e.g., mid-season)

(4) Where did you get injured (e.g., competition, training, outside of your sport)

SECTION 3: VERBAL DISCLOSURE: EXPERIENCES

I would like to ask you a few questions regarding your experiences of using verbal disclosure for a few sessions.

(1) Have you ever used this type of disclosure before?

Probe: When did you use it? (i.e., what was the occasion?)
Probe: Why did you use it?
Probe: Do you still use it much? If not, why not?
Probe: if so, do you use it often? Why?
Probe: If not, why have you never used it?

(2) What were you thinking whilst using verbal disclosure?

Probe: Can you give me an example?
Probe: Why did you feel like this?
Probe: Did you enjoy it? If so, why? If not, why not?

(3) What were you feeling when using verbal disclosure?

Probe: Can you give me an example?
Probe: What made you feel like this?
Probe: if It was good, why? If it was not, why?

(4) How did you find talking for that amount of time?

Probe: Too long? Too short?
Probe: Why did it seem too long/too short?

(5) How did you find talking over that many sessions?

Probe: Too long? Too short?
Probe: Why did it seem too long/too short?

(6) I think it was a pretty difficult injury for you. Tell me how you felt in talking in the first session?

Probe: Why do you think this was?
Probe: Can you explain more?
Probe: What do you mean by this?

(7) Tell me how you felt in talking in the second session?

Probe: Why do you think this was?
Probe: Can you explain more?
Probe: What do you mean by this?

(8) Did you experience any changes between session 1 and 2?

Probe: If yes, In what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?
Probe: What do you mean by this?

(9) Tell me how you felt in talking in the third session?

Probe: Why do you think this was?
Probe: Can you explain more?
Probe: What do you mean by this?

(10) Did you experience any changes between session 2 and 3?

Probe: If yes, In what way did things change?
Probe: Can you elaborate on this?

Probe: If no, then why not?
Probe: What do you mean by this?

(11) Tell me how you felt in the last session?

Probe: What do you mean by this?
Probe: Why do you think this was?
Probe: Can you explain more?

(12) Did you experience any changes between session 3 and 4?

Probe: What do you mean by this?
Probe: If yes, in what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(13) Did you experience any changes between session 1and 4?

Probe: What do you mean by this?
Probe: If yes, in what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(14) Were you comfortable using this type of disclosure?

Probe: If yes, why?
Probe: if no, why did you not feel comfortable?

(15) Was talking about your thoughts and feelings beneficial in any way?

Probe: How as it beneficial? What benefits do you think you gained?
Probe: If no, then why do you feel that it wasn't beneficial?

(16) Did you have any difficulties or concerns?

Probe: What do you mean by this?
Probe: What were these?
Probe: Why do you think you encountered these?

SECTION 4: VERBAL DISCLOSURE: TALKING ABOUT THE STRESSOR

In this section I am interested in how you felt when talking about your injury in particular.

(1) How did you feel talking about your injury?

Probe: What were you thinking and feeling at each session?
Probe: If it was good, why was it good?
Probe: If it was bad, why was it bad?

(2) Was talking about the injury helpful in any way?

Probe: If so, then why and how?
Probe: If not, then why?

(3) How did you feel after each session of talking about your injury?

Probe: Were you feeling like this long?
Probe: Did it change from session to session?

(4) Did you discuss the things you talked about with anybody whilst injured?

Probe: Who with?
Probe: Why?
Probe: How did it help
Probe: If not, then why not?

(5) Would you normally talk to people about things like this?

Probe: Who with?
Probe: Why?
Probe: How did it help
Probe: If not, then why not?

SECTION 5: CHANGE IN PERCEPTION

(1) Did talking change your perception of your injury in any way?

Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think writing help it to change?
Probe: When did this change start to happen?

(2) Did talking change your perception of yourself in any way?

Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think writing help it to change?
Probe: When did this change start to happen?

(3) Did talking change your perception of your relationships with others?

Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think talking help it to change?
Probe: When did this change start to happen?

(4) Did talking change your perception of your life at all?

Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think talking help it to change?
Probe: When did this change start to happen?

(5) Were these outcomes meaningful to you?

Probe: In what way?
Probe: Can you explain in more depth to me?
Probe: Can you give me some examples?

(6) What impact (if any) did they have on your life?

Probe: In what way?
Probe: Can you explain in more depth to me?
Probe: Can you give me some examples?

SECTION 6: CHANGES IN PERCEPTION FOR FURUTRE TRAINING OR COMPETITION

(1) Has using this type of disclosure changed your view of future training?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

(2) Has this type of disclosure changed your perception of future competition?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

SECTION 7: POTENTIAL USE AS AN APPLIED STRATEGY

(1) If you got another injury in the future, would you use verbal disclosure at all?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

(2) Do you think you think that verbal disclosure would be a good strategy to use for injured athletes?

Probe: If yes, why?
Probe: If no, then why not?

(3) Would you have preferred to write or talk?

Probe: Why one or the other?
Probe: Would both help?

(4) Do you think it would have been more beneficial at different stages of your injury?

Probe: When would it have been more beneficial?
Probe: Why would it have been more beneficial then?

SECTION 8: CONCLUSION

(1) How do you feel the interview went?

(2) Did you feel able to speak freely and say the things you wanted to?

(3) Were you unhappy at any point with any of the questions I asked?

(4) Do you feel like I influenced you in any way?

(5) Do you feel like I missed any important areas that you would like to discuss or add to?

Thank you for participating in this study

Appendix 10

University of Roehampton
London

Interview Guide
(Written)

INTERVIEW GUIDE

SECTION 1: INTRODUCTION (Not recorded)

My name is Jade Salim and I am from the University of Roehampton. Thank you for agreeing to participate in this interview. In this study I will be talking to participants to explore the effectiveness of using written emotional disclosure following your sport injury. The interview will contain a variety of questions, which follow through the written disclosure sessions. Any information given and any responses made will remain completely anonymous and confidential. I will possibly use some of the interview to discuss points in the write up but they will also remain anonymous. Throughout the entire interview I will be using a tape recorder to ensure that the information given is a true account of the interview which took place.

This interview will be about your experiences and if you do not feel comfortable answering any questions, then you are more than welcome to stop the interview or say that you are not happy answering. There will be no correct or incorrect answers to the interview, so do not feel that I am looking for a correct answer. If there are any questions you feel uncomfortable answering, then please feel free to say you do not want comment rather than try and answer the question how you would think I or anybody else would want you to answer. I want to learn about your experience from using written disclosure following being injured so I hope you can answer in an honest and clear way. If you do not wish to discuss certain parts of the interview, then simply say "no comment" and we can move on to the next question. If you have any questions throughout the interview, especially if you are unclear then please do not hesitate to ask.

Throughout the interview I will be asking questions based on past experiences. Feel free to take your time and pause where necessary when trying to remember the past. If you feel there is anything you feel had an impact on you during this time then please feel free to include this. This could include anything to do with friends, family, during competition, during training or any other experiences you have had. If you are having trouble recalling anything, then it is not a problem, just let me know.

Thank you again for your participation in this study. Before we begin the interview, is there anything you would like to ask or are unclear of?

SECTION 2: YOU AND YOUR SPORT

In this section I am interested in finding out all about you and your sporting career.

1. Tell me more about your involvement in [sport]?
2. How did you get into [sport]?
3. How long have you participated in [sport]?
4. What is your current level of competition?
5. How long have you competed at this level?
6. Had you had many injuries in the past?
7. What role have injuries played in your career in the past?

SECTION 2: YOUR INJURY

In this section I am interested in your injury and the events that led up to you being injured. I would like to confirm information you have already told me about your injury and gain an insight into what happened and the causes of your injury.

(1) From your questionnaire I see your injury was [insert nature/type], tell me more about this?

(2) From your questionnaire I see you were out of training because of your injury for [insert amount of weeks] (confirmation)

(3) When did it happen? (e.g., mid-season)

(4) Where did you get injured (e.g., competition, training, outside of your sport)

SECTION 3: WRITTEN DISCLOSURE: EXPERIENCES

I would like to ask you a few questions regarding your experiences of using verbal disclosure for a few sessions.

(1) Have you ever used this type of disclosure before?

Probe: When did you use it? (i.e., what was the occasion?)
Probe: Why did you use it?
Probe: Do you still use it much? If not, why not?
Probe: if so, do you use it often? Why?
Probe: If not, why have you never used it?

(2) What were you thinking whilst using written disclosure?

Probe: Why did you feel like this?
Probe: Did you enjoy it? If so, why? If not, why not?

(3) What were you feeling when using written disclosure?

Probe: What made you feel like this?
Probe: if It was good, why? If it was not, why?

(4) How did you find writing for that amount of time?

Probe: Too long? Too short?
Probe: Why did it seem too long/too short?

(5) How did you find writing over that many sessions?

Probe: Too long? Too short?
Probe: Why did it seem too long/too short?

(6) I think it was a pretty difficult injury for you. Tell me how you felt writing in the first session?

Probe: Why do you think this was?
Probe: Can you explain more?

(7) Tell me how you felt in writing in the second session?

Probe: Why do you think this was?
Probe: Can you explain more?

(8) Did you experience any changes between session 1 and 2?

Probe: If yes, In what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(9) Tell me how you felt writing in the third session?

Probe: What do you mean by this?
Probe: If yes, in what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(10) Did you experience any changes between session 2 and 3?

Probe: If yes, In what way did things change?

Probe: Can you elaborate on this?
Probe: If no, then why not?

(11) Tell me how you felt in the last session?

Probe: Why do you think this was?
Probe: Can you explain more?

(17) Did you experience any changes between session 3 and 4?

Probe: If yes, in what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(18) Did you experience any changes between session 1and 4?

Probe: If yes, in what way did things change?
Probe: Can you elaborate on this?
Probe: If no, then why not?

(12) Were you comfortable using this type of disclosure?

Probe: If yes, why?
Probe: if no, why did you not feel comfortable?

(13) Was writing about your thoughts and feelings beneficial in any way?

Probe: How as it beneficial? What benefits do you think you gained?
Probe: If no, then why do you feel that it wasn't beneficial?

(14) Did you have any difficulties or concerns?

Probe: What were these?
Probe: Why do you think you encountered these?

SECTION 4: VERBAL DISCLOSURE: TALKING ABOUT THE STRESSOR

In this section I am interested in how you felt when talking about your injury in particular.

(1) How did you feel writing about your injury?

Probe: What were you thinking and feeling at each session?
Probe: If it was good, why was it good?

Probe: If it was bad, why was it bad?

(2) Was writing about the injury helpful in any way?

Probe: If so, then why and how?
Probe: If not, then why?

(3) How did you feel after each session of writing about your injury?

Probe: Were you feeling like this long?
Probe: Did it change from session to session?

(4) Did you discuss the things you talked about with anybody whilst injured?

Probe: Who with?
Probe: Why?
Probe: How did it help
Probe: If not, then why not?

(5) Would you normally talk to people about things like this?

Probe: Who with?
Probe: Why?
Probe: How did it help
Probe: If not, then why not?

SECTION 5: CHANGE IN PERCEPTION

(1) Did writing change your perception of your injury in any way?

Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think writing help it to change?
Probe: When did this change start to happen?

(2) Did writing change your perception of yourself in any way?
Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think writing help it to change?
Probe: When did this change start to happen?

(3) Did writing change your perception of your relationships with others?
Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think talking help it to change?

Probe: When did this change start to happen?

(4) Did writing change your perception of your life at all?
Probe: Can you explain what you mean by this?
Probe: How did writing about it help this change?
Probe: Why do you think talking help it to change?
Probe: When did this change start to happen?

(7) Were these outcomes meaningful to you?
Probe: In what way?
Probe: Can you explain in more depth to me?
Probe: Can you give me some examples?

(8) What impact (if any) did they have on your life?
Probe: In what way?
Probe: Can you explain in more depth to me?
Probe: Can you give me some examples?

SECTION 6: CHANGES IN PERCEPTION FOR FURUTRE TRAINING OR COMPETITION

(1) Has using this type of disclosure changed your view of future training?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

(2) Has this type of disclosure changed your perception of future competition?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

SECTION 7: POTENTIAL USE AS AN APPLIED STRATEGY

(1) If you got another injury in the future, would you use written disclosure at all?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

(2) Do you think you think that written disclosure would be a good strategy to use for injured athletes?

Probe: If yes, why?
Probe: If no, then why not?

(3) Would you have preferred to write or talk?

Probe: Why one or the other?
Probe: Would both help?

(4) Do you think it would have been more beneficial at different stages of your injury?

Probe: When would it have been more beneficial?
Probe: Why would it have been more beneficial then?

SECTION 8: CONCLUSION

(1) How do you feel the interview went?

(2) Did you feel able to speak freely and say the things you wanted to?

(3) Were you unhappy at any point with any of the questions I asked?

(4) Do you feel like I influenced you in any way?

Do you feel like I missed any important areas that you would like to discuss or add to?

Thank you for participating in this study

Appendix 11

Interview Guide
(Control)

INTERVIEW GUIDE

SECTION 1: INTRODUCTION (Not recorded)

My name is Jade Salim and I am from the University of Roehampton. Thank you for agreeing to participate in this interview. In this study I will be talking to participants to explore the effectiveness of journal writing following your sport injury. The interview will contain a variety of questions, which follow through the written disclosure sessions. Any information given and any responses made will remain completely anonymous and confidential. I will possibly use some of the interview to discuss points in the write up but they will also remain anonymous. Throughout the entire interview I will be using a tape recorder to ensure that the information given is a true account of the interview which took place.

This interview will be about your experiences and if you do not feel comfortable answering any questions, then you are more than welcome to stop the interview or say that you are not happy answering. There will be no correct or incorrect answers to the interview, so do not feel that I am looking for a correct answer. If there are any questions you feel uncomfortable answering, then please feel free to say you do not want comment rather than try and answer the question how you would think I or anybody else would want you to answer. I want to learn about your experience from writing a daily log following being injured so I hope you can answer in an honest and clear way. If you do not wish to discuss certain parts of the interview, then simply say "no comment" and we can move on to the next question. If you have any questions throughout the interview, especially if you are unclear then please do not hesitate to ask.

Throughout the interview I will be asking questions based on past experiences. Feel free to take your time and pause where necessary when trying to remember the past. If you feel there is anything you feel had an impact on you during this time then please feel free to include this. This could include anything to do with friends, family, during competition, during training or any other experiences you have had. If you are having trouble recalling anything, then it is not a problem, just let me know.

Thank you again for your participation in this study. Before we begin the interview, is there anything you would like to ask or are unclear of?

SECTION 2: YOU AND YOUR SPORT

In this section I am interested in finding out all about you and your sporting career.

1. Tell me more about your involvement in [sport]?
2. How did you get into [sport]?
3. How long have you participated in [sport]?
4. What is your current level of competition?
5. How long have you competed at this level?
6. Had you had many injuries in the past?
7. What role have injuries played in your career in the past?

SECTION 2: YOUR INJURY

In this section I am interested in your injury and the events that led up to you being injured. I would like to confirm information you have already told me about your injury and gain an insight into what happened and the causes of your injury.

(1) From your questionnaire I see your injury was [insert nature/type], tell me more about this?

(2) From your questionnaire I see you were out of training because of your injury for [insert amount of weeks] (confirmation)

(3) When did it happen? (e.g., mid-season)

(4) Where did you get injured (e.g., competition, training, outside of your sport)

(5) Explain to me exactly what happened which led you to get injured?

SECTION 3: DAILY ACTIVITIES: EXPERIENCES

I would like to ask you a few questions regarding your experiences of writing about your daily events.

(1) Have you ever used a journal to write about your daily events before?

Probe: When did you use it? (i.e., what was the occasion?)
Probe: Why did you use it?
Probe: Do you still use it much? If not, why not?
Probe: if so, do you use it often? Why?
Probe: If not, why have you never used it?

(2) What did you think and feel when writing about your daily events?

Probe: Did you enjoy it? If so, why? If not, why not?

(3) How easy or difficult was it to write without thoughts or feelings?

Probe: Can you elaborate on this?

(4) Did these feelings differ between the first session and the final session?

Probe: If so, How did your feelings change? Why do you think this was?
Probe: If not, did you feel no different between session one and session five? Why not?

(5) How did you find writing for 20 minutes?

Probe: Too long? Too short?

(6) How did you find writing for 4 days?

Probe: Too long? Too short?

(7) Were you comfortable doing this writing?

Probe: If yes, why?
Probe: if no, why did you not feel comfortable?

(8) Was writing about your daily events beneficial in any way?

Probe: How as it beneficial? What benefits do you think you gained?
Probe: If no, then why do you feel that it wasn't beneficial?

(9) Did you have any difficulties or concerns?

Probe: What were these?
Probe: Why do you think you encountered these?

SECTION 4: CHANGES IN PERCEPTION

In this section I am interested in how you felt when writing about your daily activities in particular

(1) Do you ever really discuss your daily activities with anybody?

Probe: Who with?
Probe: Why?
Probe: How did it help
Probe: If not, then why not?

(2) Did writing about your daily activities change your perception of yourself at all?

Probe: did you learn anything about yourself?
Probe: How did the writing change this?

(3) Did writing about your daily activities change your perception about your injury?

Probe: If so, then why? If not, then why?

SECTION 5: CHANGES IN PERCEPTION FOR FURUTRE TRIANING OR COMPETITION

(1) Has writing about daily events changed your view about how you would approach future training and/or competition?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

SECTION 6: POTENTIAL USE AS AN APPLIED STRATEGY

(1) If you got another injury in the future, would you use a diary at all?

Probe: If yes, how? Why?
Probe: If no, how? Why not?

(2) Do you think you think that writing about daily activities would be a good strategy to use for injured athletes?

Probe: If yes, why?
Probe: If no, then why not?

(3) Would you have preferred to write or talk?

Probe: Why one or the other?
Probe: Would both help?

(4) Do you think it would have been more beneficial at different stages of your injury?

Probe: When would it have been more beneficial?
Probe: Why would it have been more beneficial then?

SECTION 7: CONCLUSION

(1) How do you feel the interview went?

(2) Did you feel able to speak freely and say the things you wanted to?

(3) Were you unhappy at any point with any of the questions I asked?

(4) Do you feel like I influenced you in any way?

(5) Do you feel like I missed any important areas that you would like to discuss or add to?

Thank you for participating in this study

Appendix 12

Written

During today's writing session, your task is to write about your deepest thoughts and feelings about a recent injury that has happened to you. It should be something you have experienced within the last two years. I would like you to write about the injury and how it is personally relevant to you. In your writing, the most important thing is that you really let go and explore your deepest emotions and thoughts related to this event. You may write about how this experience has affected your experience in sport and your sporting involvement, your view of yourself, others, or of the world in general. You might tie your experience to your relationships with others, including coaches, fellow athletes, parents, family, or relatives, or who you are in general as an athlete and as a person. The only rule about the writing task is that you are to write continuously, without stopping, for 20 minutes. Do not worry about spelling, grammar, or sentence structure. All of your writing will be completely confidential and will only be seen by the researchers in the study; if reported in research publications, your writing will remain anonymous. Do you have any questions before we begin?

Verbal

During today's session, your task is to talk about your deepest thoughts and feelings about a recent injury that has happened to you. It should be something you have experienced within the last two years. I would like you to talk about the injury and how it is personally relevant to you. In your talking, the most important thing is that you really let go and explore your deepest emotions and thoughts related to this event. You may talk about how this experience has affected your experience in sport and your sporting involvement, your view of yourself, others, or of the world in general. You might tie your experience to your relationships with others, including coaches, fellow athletes, parents, family, or relatives, or who you are in general as an athlete and as a person. The only rule about the verbal task is that you are to talk continuously, without stopping, for 20 minutes. Do not worry about spelling, grammar, or sentence structure. All of your talking will be completely confidential and will only be seen by the researchers in the study; if reported in research publications, your writing will remain anonymous. Do you have any questions before we begin?

Control

For today’s session we would like you to write about how you use your time. Each day in your writing we want you to be as objective as possible. I am not interested in your emotions or opinions. Rather I want you to try to be completely objective. Feel free to be as detailed as possible. In today’s writing, we want you to describe what you did yesterday from the time you got up until the time you went to bed. The only rule about the writing task is that you are to write continuously, without stopping, for 20 minutes. Do not worry about spelling, grammar, or sentence structure. All of your writing will be completely confidential and will only be seen by the researchers in the study; if reported in research publications, your writing will remain anonymous. Do you have any questions before we begin?